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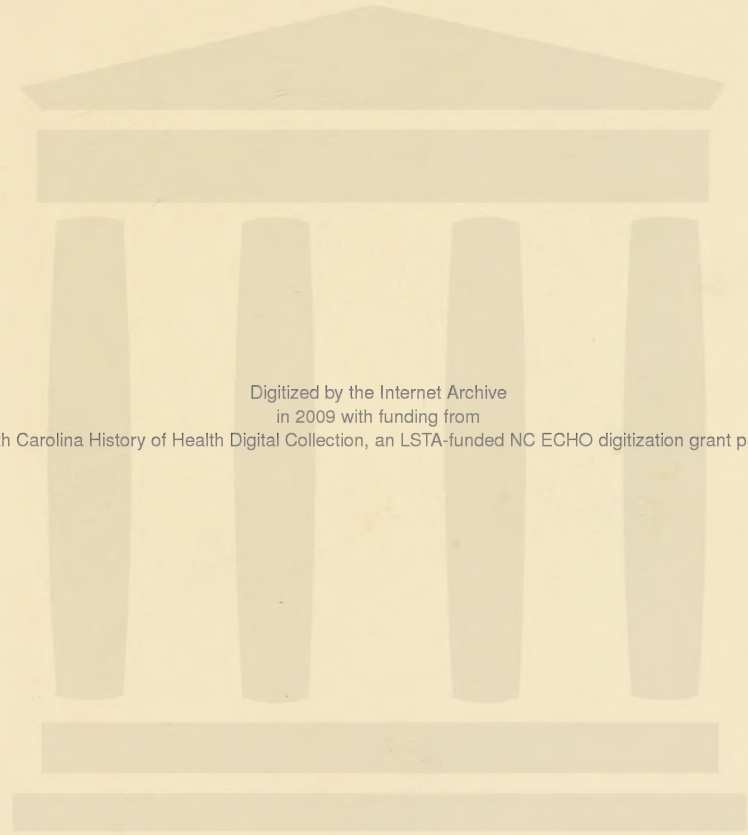

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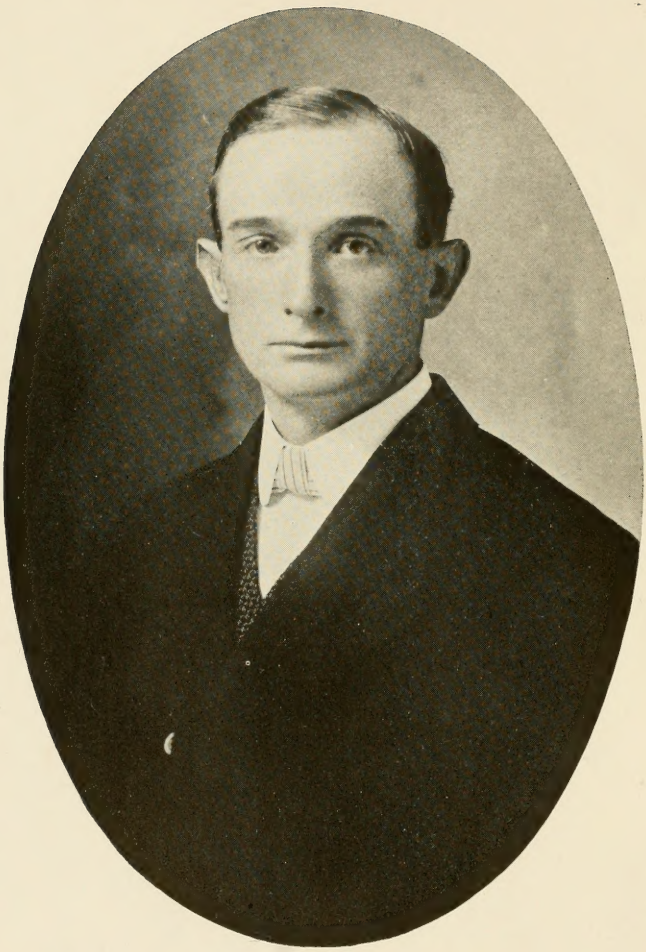

Sincerely Yours
James M. Parratt

TRANSACTIONS

OF THE

MEDICAL SOCIETY

OF THE

STATE OF NORTH CAROLINA

SIXTY-FIRST ANNUAL MEETING

HELD AT

Raleigh, N. C.,

June 16, 17, 18, 1914

President, Dr. J. M. PARROTT, Kinston
Secretary, Dr. JNO. A. FERRELL, Raleigh

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1914

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"It is understood that the Society is not to be considered as endorsing all the views and opinions of authors of papers published in the Transactions of the Society."—*Extract from By-laws, chapter 10, section 8.*

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ROSTER OF OFFICERS OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM ORGANIZATION TO 1914

*Missing Data Not to be Found in Records.

	Date	Place	Members in Attendance	President	Vice-Presidents	Secretary	Treasurer	Members on Roll*	Honorary Members*	Honorary Fellows*
	1849	Raleigh	25	F. J. Hill		W. H. McKee		25		
1	1850	Raleigh	21	Edmund Strudwick	F. J. Haywood, C. E. Johnson, J. W. Williamson, W. G. Thomas.	W. H. McKee	W. G. Hill	38	9	
2	1851	Raleigh	23	Edmund Strudwick	C. E. Johnson	W. H. McKee	W. G. Hill	46	9	
3	1852	Wilmington	38	J. E. Williamson	Thomas N. Cameron, William G. Hill, Johnston B. Jones, N. J. Pittman.	E. B. Haywwod	J. J. W. Tucker	72	12	
4	1853	Fayetteville	24	J. E. Williamson	Wm. G. Hill, Johnston B. Jones, J. B. G. Myers, N. J. Pittman.	W. W. Harris	Daniel Dupree	80	14	
5	1854	Raleigh	37	J. H. Dickson	N. J. Pittman, J. B. G. Myers, J. Graham Tull, A. D. McLean.	S. S. Satchwell	Daniel Dupree	84	17	
6	1855	Salisbury	23	J. H. Dickson	J. Graham Tull, Owen Hadley, A. D. McLean, Hugh Kelly.	S. S. Satchwell	J. B. Dunn	96	18	
7	1856	Raleigh	35	C. E. Johnson	Marcellus Whitehead, E. R. Gibson, Johnston B. Jones, O. F. Manson.	S. S. Satchwell	J. B. Dunn	101	22	
8	1857	Edenton	25	C. E. Johnson	Marcellus Whitehead, O. F. Manson, H. W. Faison, E. T. Gibson.	W. G. Thomas	J. B. Dunn	113	16	
9	1858	New Bern	69	W. H. McKee	Edward Warren, C. W. Graham, Caleb Winslow, A. B. Pierce.	W. G. Thomas	J. B. Dunn	172	18	
10	1859	Statesville	81	W. H. McKee	James G. Ramsey, P. E. Hines, J. R. Mercer, W. T. Howard.	W. G. Thomas	C. W. Graham			
11	1860	Washington	64	N. J. Pittman	P. T. Henry, R. H. Winborne, M. Whitehead, T. S. Leach.	W. G. Thomas	C. W. Graham	233	18	
12	1861	Morganton	23	N. J. Pittman	J. J. Summerell, C. T. Murphy, G. W. Hodges, W. A. B. Norcom.	W. G. Thomas	C. W. Graham	244	18	
13	1866	Raleigh	20	J. J. Summerell		W. G. Thomas	C. W. Graham			
14	1867	Tarboro	41	W. G. Thomas	E. Burke Haywood, R. H. Winborne, W. L. Barrow, J. W. Jones.	S. S. Satchwell	C. W. Graham	288	11	
15	1868	Warrenton	27	S. S. Satchwell	Hugh Kelly, George E. Foote, Charles J. O'Hagan, J. H. Baker.	Thomas F. Wood	J. W. Jones			
16	1869	Salisbury	36	E. Burke Haywood	Thos. E. Wilson, A. B. Pierce, C. T. Murphy, M. A. Locke.	Thomas F. Wood	J. W. Jones			
17	1870	Wilmington	38	C. J. O'Hagan	E. A. Anderson, F. N. Lucky, W. R. Sharpe, R. L. Payne.	Thomas F. Wood	J. W. Jones			
18	1871	Raleigh	35	Hugh Kelly	D. N. Patterson, R. C. Pearson, J. B. Seaby, G. L. Kirby.	Thomas F. Wood	J. W. Jones			
19	1872	New Bern	34	W. G. Hill	H. W. Faison, R. I. Hicks, G. H. Macon, W. A. B. Norcom.	James McKee	J. W. Jones			
20	1873	Statesville	43	M. Whitehead	W. T. Ennett, William Little, Chas. Duffy, T. P. Jerman.	James McKee	H. T. Bahnson			

21	1874	Charlotte	56	W. A. B. Norcom	J. B. Jones, R. F. Lewis, C. G. Cox, J. L. Knight.	James McKee	H. T. Bahnson			
22	1875	Wilson	60	J. W. Jones	Walter Debnam, J. A. Gibson, Wm. Little, D. N. Patterson.	James McKee	H. T. Bahnson	148	5	
23	1876	Fayetteville	33	Peter E. Hines	J. H. Baker, G. G. Smith, T.D. Haigh, J. K. Hall.	James McKee	H. T. Bahnson	157	4	
24	1877	Salem	42	George A. Foote	J. K. Hall, B. W. Robinson, A. Holmes, A. A. Hill.	James McKee	A. G. Carr	177	4	
25	1878	Goldsboro	79	R. L. Payne	E. M. Rountree, Richard Anderson, S. B. Flowers, L. A. Stith.	L. J. Picot	A. G. Carr	194	6	
26	1879	Greensboro	109	Charles Duffy, Jr.	J. A. Gibson, Willis Alston, Jas. McKee, A. A. Hill.	L. J. Picot	A. G. Carr	198	6	
27	1880	Wilmington	105	J. F. Shaffner	J. K. Hall, W. C. McDuffie, W. R. Wilson, R. F. Lewis.	L. J. Picot	A. G. Carr	225	6	
28	1881	Asheville	92	R. B. Haywood	J. E. McRee, W. H. Lilly, R. H. Speight, W. J. H. Bellamy.	L. J. Picot	A. G. Carr	254	6	
29	1882	Concord	65	Thomas F. Wood	T. J. Moore, D. J. Cain, S. E. Evans, John McDonald.	L. J. Picot	A. G. Carr	297	7	
30	1883	Tarboro	112	J. K. Hall	A. W. Knox, J.M. Hadley, E. S. Foster, John Whitehead.	L. J. Picot	A. G. Carr	310	7	
31	1884	Raleigh	112	A. B. Pierce	F. W. Potter, G. W. Graham, R. Dillard, G. W. Long.	L. J. Picot	A. G. Carr	348	7	
32	1885	Durham	173	W. C. McDuffie	James McKee, T. E. Anderson, W. H. Whitehead, A. G. Carr.	W. C. Murphy	R. L. Payne, Jr.	424	6	
33	1886	New Bern	113	Joseph Graham	H. T. Bahnson, L. J. Picot, J. L. McMillan, W. W. Faison.	J. M. Baker	R. L. Payne, Jr.	438	7	
34	1887	Charlotte	112	H. T. Bahnson	G. G. Smith, J. L. Nicholson, C. M. Poole, H. B. Ferguson.	J. M. Baker	R. L. Payne, Jr.	452	7	
35	1888	Fayetteville	133	T. D. Haigh	W. P. Ennett, J. A. Dunn, T. E. Anderson	J. M. Baker	C. M. Poole	306	6	
36	1889	Elizabeth City	50	W. T. Ennett	W. J. Jones, S. W. Stevenson, G. W. Long	J. M. Baker	C. M. Poole	410	6	
37	1890	Oxford	160	G. G. Thomas	R. L. Payne, Jr., Richard Dillard, S. W. Booth	J. M. Hays	C. M. Poole	414	6	
38	1891	Asheville	135	R. H. Lewis	S. W. Battle, J. L. Nicholson, W. H. Lilly	J. M. Hays	C. M. Poole	422	6	
39	1892	Wilmington	162	W. T. Cheatham	T. S. Burbank, J. W. Long, W. H. H. Cobb, W. D. Hilliard.	J. M. Hays	C. M. Poole	431	6	
40	1893	Raleigh	221	J. W. McNeill	W. G. Galloway, H. H. Harris, J. M. Hadley, Thomas Hill.	R. D. Jewett	M. P. Perry	447	5	3
41	1894	Greensboro	166	W. H. H. Cobb	J. A. Hodge, R. W. Tate, Willis Alston, M. H. Fletcher.	R. D. Jewett	M. P. Perry	454	5	3
42	1895	Goldsboro		J. H. Tucker	J. Howell Way, W. H. Harrell, O. McMullan, C. A. Misenheimer.	R. D. Jewett	M. P. Perry	436	7	3
43	1896	Winston-Salem	158	R. L. Payne	S. D. Booth, J. P. Munroe, J. A. Burroughs, J. E. Grimsley.	R. D. Jewett	M. P. Perry	452	7	3
44	1897	Morehead City	103	P. L. Murphy	J. C. Walton, A. A. Kent, M. R. Adams, B. L. Long.	R. D. Jewett	M. P. Perry	406	6	3
45	1898	Charlotte		Francis Duffy	E. C. Register, A. T. Cotton, J. B. H. Knight, F. H. Russell.	R. D. Jewett	M. P. Perry	437	6	21
46	1899	Asheville	152	L. J. Picot	I. W. Faison, J. W. White, H. H. Dodson, W. C. Brownson.	George W. Pressly	G. T. Sikes	489	6	16
47	1900	Tarboro	115	George W. Long	C. M. Poole, Jas. M. Parrott, T. B. Williams, W. D. Hilliard.	George W. Pressly	G. T. Sikes	482	6	21

ROSTER OF OFFICERS OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA—Continued.

*Missing Data Not to be Found in Records.

	Date	Place	Members in Attendance	President	Vice-Presidents	Secretary	Treasurer	Members on Roll*	Honorary Members*	Honorary Fellows*
48	1901	Durham	186	Julian M. Baker	M. H. Fletcher, C. A. Julian, D. A. Stanton, E. M. Summerell.	George W. Pressly	G. T. Sikes	515	5	18
49	1902	Wilmington	147	Robert S. Young	A. G. Carr, E. D. Dixon-Carroll, I. M. Taylor, J. M. Parrott.	George W. Pressly	G. T. Sikes	546	5	20
50	1903	Hot Springs	155	A. W. Knox	E. G. Moore, C. A. Julian, W. W. McKenzie, J. L. Nicholson.	J. Howell Way	G. T. Sikes	530	6	19
51	1904	Raleigh	326	H. B. Weaver	John Hay Williams, John C. Rodman, S. F. Pfohl.	J. Howell Way	G. T. Sikes	1033	8	17
52	1905	Greensboro	361	David T. Tayloe	C. A. Julian, John T. Burrus, I. W. Faison	J. Howell Way	G. T. Sikes	1175	8	17
53	1906	Charlotte	406	Edward C. Register	L. B. McBrayer, W. H. H. Cobb, Jr., W. O. Spencer.	J. Howell Way	G. T. Sikes	1234	8	16
54	1907	Morehead City	217	Samuel D. Booth	C. M. Strong, J. E. McLoughlin, W. F. Hargrave.	David A. Stanton	H. McKee Tucker	888	7	16
55	1908	Winston-Salem	372	J. Howell Way	J. E. Stokes, J. A. Turner, W. H. Dixon	David A. Stanton	H. McKee Tucker	998	7	28
56	1909	Asheville	337	J. F. Highsmith	C. M. Poole, D. A. Garrison, D. O. Dees	David A. Stanton	H. McKee Tucker	1067	7	25
57	1910	WrightsvilleB'ch	276	E. J. Wood	John Q. Myers, L. D. Wharton	David A. Stanton	H. D. Walker	1080	8	35
58	1911	Charlotte	412	C. M. Van Poole	J. V. McGougan, W. E. Warren, L. N. Glenn	David A. Stanton	H. D. Walker	880	8	45
59	1912	Hendersonville	296	A. A. Kent	J. P. Munroe, W. P. Horton, J. G. Murphy	David A. Stanton	H. D. Walker	950	8	44
60	1913	Morehead City	232	J. P. Munroe	F. R. Harris, E. S. Bullock, L. B. Morse	Jno. A. Ferrell	H. D. Walker	1133	8	40
61	1914	Raleigh	431	J. M. Parrott	E. T. Dickinson, J. T. J. Battle, E. Sevier	Jno. A. Ferrell	H. D. Walker	1228	8	47

PAST MEMBERS BOARD OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA.

JAMES H. DICKSON, President, Wilmington 1859-1866
Charles E. Johnson, Raleigh 1859-1866
Caleb Winslow, Hertford 1859-1866
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Christopher Happoldt, Morganton 1859-1866
J. Graham Tull, New Bern 1859-1866
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R. H. Winborne, Edenton 1866-1872
S. S. Satchwell, Rocky Mount 1866-1872
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C. Tate Murphy 1872-1878
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J. W. Jones, Tarboro 1872-1878
R. L. Payne, Lexington 1872-1878
CHARLES DUFFY, JR., Secretary, New Bern 1872-1878
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Joseph Graham, Charlotte 1878-1884
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Francis Duffy, New Bern 1884-1890
P. L. Murphy, Morganton 1884-1890
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Albert Anderson, Raleigh 1898-1902
E. C. REGISTER, President, Charlotte 1898-1902
Thomas S. McMullan, Hertford 1900-1902
John C. Walton, Richmond, Va 1900-1902
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M. H. FLETCHER, President, Asheville 1902-1908
James M. Parrott, Kinston 1902-1908
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John C. Rodman, Washington 1908-1914
BENJ. K. HAYS, Secretary 1908-1914
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Wm. W. McKenzie, Salisbury 1908-1914
Henry H. Dodson, Greensboro 1908-1914
J. L. Nicholson, Richlands 1908-1914

BOARD OF MEDICAL EXAMINERS, 1914-1920.

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H. A. ROYSTER, Secretary, Raleigh, Surgery.
C. T. HARPER, Wilmington, Anatomy, Histology and Microscopy.
J. G. BLOUNT, Washington, Practice of Medicine.
J. Q. MYERS, Charlotte, Pharmacology, Materia Medica and Therapeutics
I. M. TAYLOR, Morganton, Chemistry and Diseases of Children.
M. L. STEVENS, Asheville, Physiology, Pathology and Hygiene

NEXT ANNUAL SESSION AT GREENSBORO, JUNE 8, 9, 10, 1915

ROSTER OF MEMBERS NORTH CAROLINA STATE BOARD OF HEALTH, FROM ORGANIZATION IN 1877 TO 1914.

Name	Address	Appointed by	Term
S. S. Satchwell, M.D., President	Rocky Point	State Society	1877 to 1878
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1877 to 1878
Joseph Graham, M.D.	Charlotte	State Society	1877 to 1878
Charles Duffy, Jr., M.D.	New Bern	State Society	1877 to 1878
Peter E. Hines, M.D.	Raleigh	State Society	1877 to 1878
George A. Foote, M.D.	Warrenton	State Society	1877 to 1878
S. S. Satchwell, M.D., President	Rocky Point	State Society	1878 to 1884
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1878 to 1884
Chas. J. O'Hagan, M.D., President	Greenville	State Society	1878 to 1882
George A. Foote, M.D.	Warrenton	State Society	1878 to 1882
Marcellus Whitehead, M.D.	Salisbury	State Society	1878 to 1880
R. L. Payne, M.D.	Lexington	State Society	1878 to 1880
H. G. Woodfin, M.D.	Franklin	Gov. Z. B. Vance	1878 to 1880
A. R. Ledeux, Chemist	Chapel Hill	Gov. Z. B. Vance	1878 to 1880
William Cain, Civil Engineer	Charlotte	Gov. Z. B. Vance	1878 to 1880
R. L. Payne, M.D.	Lexington	State Society	1881 to 1887
Marcellus Whitehead, M.D., Pres.	Salisbury	State Society	1881 to 1884
J. M. Lyle, M.D.	Franklin	Gov. T. J. Jarvis	1881 to 1883
William Cain, Civil Engineer	Charlotte	Gov. T. J. Jarvis	1881 to 1883
W. G. Simmons, Chemist	Wake Forest	Gov. T. J. Jarvis	1881 to 1883
J. W. Jones, M.D., President	Wake Forest	State Society	1883 to 1889
John McDonald, M.D.	Washington	State Society	1883 to 1889
S. H. Lyle, M.D.	Franklin	Gov. T. J. Jarvis	1883 to 1885
W. G. Simmons, Chemist	Wake Forest	Gov. T. J. Jarvis	1883 to 1885
Arthur Winslow, Civil Engineer	Raleigh	Gov. T. J. Jarvis	1883 to 1886
R. H. Lewis, M.D.	Raleigh	State Board	1884 to 1893
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1885 to 1887
William D. Hillis, M.D.	Asheville	State Society	1885 to 1891
Arthur Winslow, Civil Engineer	Raleigh	Gov. A. M. Scales	1885 to 1891
W. G. Simmons, Chemist	Wake Forest	Gov. A. M. Scales	1885 to 1887
J. H. Tucker, M.D.	Henderson	Gov. A. M. Scales	1885 to 1887
R. H. Lewis, M.D., Secretary	Raleigh	State Society	1887 to 1897
H. T. Bahnson, M.D., President	Winston-Salem	State Society	1887 to 1893
Arthur Winslow, Civil Engineer	Raleigh	Gov. A. M. Scales	1887 to 1888
W. G. Simmons, Chemist	Wake Forest	Gov. A. M. Scales	1887 to 1889
J. H. Tucker, M.D.	Henderson	Gov. A. M. Scales	1887 to 1889
J. L. Ludlow, Civil Engineer	Winston	Gov. A. M. Scales	1888 to 1891
J. H. Tucker, M.D.	Henderson	Gov. D. G. Fowle	1889 to 1891
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. D. G. Fowle	1889 to 1891
J. L. Ludlow, Civil Engineer	Winston	Gov. D. G. Fowle	1889 to 1893
J. A. Hodges, M.D.	Fayetteville	State Society	1889 to 1892
J. M. Baker, M.D.	Tarboro	State Society	1889 to 1893
J. H. Tucker, M.D.	Henderson	Gov. T. M. Holt	1891 to 1893
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. T. M. Holt	1891 to 1893
J. L. Ludlow, Civil Engineer	Winston	Gov. T. M. Holt	1891 to 1892
*Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1891 to 1897
George G. Thomas, M.D., President	Wilmington	State Board Health	1892 to 1897
S. Westray Battle, M.D.	Asheville	State Society	1891 to 1895
W. H. Harrell, M.D.	Williamston	State Society	1892 to 1895
John Whitehead, M.D.	Salisbury	State Board Health	1893 to 1895
W. H. G. Lucas	White Hall	Gov. Elias Carr	1893 to 1895
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. Elias Carr	1893 to 1895
John C. Chase, Civil Engineer	Wilmington	Gov. Elias Carr	1893 to 1895
R. H. Lewis, M.D., Secretary	Raleigh	Gov. Elias Carr	1893 to 1895
W. P. Beall, M.D.	Greensboro	Gov. Elias Carr	1894 to 1897
W. J. Lumsden, M.D.	Elizabeth City	Gov. Elias Carr	1895 to 1897
John Whitehead, M.D.	Salisbury	State Society	1895 to 1897
W. H. Harrell, M.D.	Williamston	State Society	1895 to 1897
W. P. Beall, M.D.	Greensboro	Gov. Elias Carr	1895 to 1897
R. H. Lewis, M.D., Secretary	Raleigh	Gov. Elias Carr	1895 to 1897
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. Elias Carr	1895 to 1897
John C. Chase, Civil Engineer	Wilmington	Gov. Elias Carr	1895 to 1897
C. J. O'Hagan, M.D.	Greenville	Gov. D. L. Russell	1897 to 1899
John D. Spicer, M.D.	Goldsboro	Gov. D. L. Russell	1897 to 1899
J. L. Nicholson, M.D.	Richlands	Gov. D. L. Russell	1897 to 1899
R. H. Lewis, M.D., Secretary	Raleigh	Gov. D. L. Russell	1897 to 1899
A. W. Shaffer, Sanitary Engineer	Raleigh	Gov. D. L. Russell	1897 to 1899
Charles J. O'Hagan, M.D.	Greenville	Gov. D. L. Russell	1899 to 1901
J. L. Nicholson, M.D.	Richlands	Gov. D. L. Russell	1899 to 1901
Albert Anderson, M.D.	Wilson	Gov. D. L. Russell	1899 to 1901
R. H. Lewis, M.D., Secretary	Raleigh	Gov. D. L. Russell	1899 to 1901
A. W. Shaffer, Civil Engineer	Raleigh	Gov. D. L. Russell	1899 to 1901
George G. Thomas, M.D., President	Wilmington	State Society	1899 to 1901
S. Westray Battle, M.D.	Asheville	State Society	1899 to 1901
H. W. Lewis, M.D.	Jackson	State Society	1899 to 1901
H. H. Dodson, M.D.	Milton	State Society	1899 to 1901

*Died in 1892, leaving a five-year unexpired term, which was filled by the Board.

Name	Address	Appointed by	Term
R. H. Lewis, M.D., Secretary	Raleigh	Gov. C. B. Aycock	1901 to 1907
W. P. Ivey, M.D.	Lenoir	Gov. C. B. Aycock	1901 to 1907
George G. Thomas, M.D., President	Wilmington	Gov. C. B. Aycock	1901 to 1905
Francis Duffy, M.D.	New Bern	Gov. C. B. Aycock	1901 to 1905
J. L. Ludlow, Civil Engineer	Winston	Gov. C. B. Aycock	1901 to 1905
S. Westray Battle, M.D.	Asheville	State Society	1901 to 1907
H. W. Lewis, M.D.	Northampton	State Society	1901 to 1907
W. H. Whitehead, M.D.	Rocky Mount	State Society	1901 to 1905
J. L. Nicholson, M.D.	Richlands	State Society	1901 to 1905
J. L. Ludlow, Civil engineer	Winston	Gov. C. B. Aycock	1903 to 1909
J. Howell Way, M.D.	Waynesville	Gov. R. B. Glenn	1905 to 1911
W. O. Spencer, M.D.	Winston	Gov. R. B. Glenn	1905 to 1911
George G. Thomas, M.D., President	Wilmington	State Society	1905 to 1911
Thomas E. Anderson, M.D.	Statesville	State Society	1905 to 1911
R. H. Lewis, M.D.	Raleigh	Gov. R. B. Glenn	1907 to 1913
E. C. Register, M.D.	Charlotte	Gov. R. B. Glenn	1907 to 1913
David T. Tayloe, M.D.	Washington	State Society	1907 to 1913
*Jas. A. Burroughs, M.D.	Asheville	State Society	1907 to 1909
J. E. Ashcraft, M.D.	Monroe	State Board Health	1909 to 1913
J. L. Ludlow, Civil Engineer	Winston-Salem	Gov. W. W. Kitchin	1909 to 1915
J. Howell Way, M.D., President	Waynesville	Gov. W. W. Kitchin	1911 to 1917
W. O. Spencer, M.D.	Winston-Salem	Gov. W. W. Kitchin	1911 to 1917
Thos. E. Anderson, M.D.	Statesville	State Society	1911 to 1917
Chas. J. O'H. Laughinghouse, M.D.	Greenville	State Society	1911 to 1917
Richard H. Lewis, M.D.	Raleigh	Gov. Locke Craig	1913 to 1919
Edw. J. Wood, M.D.	Wilmington	Gov. Locke Craig	1913 to 1910
A. A. Kent, M.D.	Lenoir	State Society	1913 to 1919
Cyrus Thompson, M.D.	Jacksonville	State Society	1913 to 1919

*Died leaving unexpired term.

STATUS OF SOCIETY MEMBERSHIP BY COUNTIES FOR YEARS 1906–1914.

Counties.	1906	1907	1908	1909	1910	1911	1912	1913	1914
Alamance	15	7	17	15	14	12	11	11	13
Alexander *a*									
Alleghany									
Anson	3	1	3	1	1	1	6	8	7
Ashe					1				
Avery *b*									8
Beaufort	10	15	15	11	11	16	15	14	14
Bertie	3	4	4	4	5	2	2	2	3
Bladen	4	4	3	3	3	4	4	5	7
Brunswick	4	4		4	2	2	2	5	4
Buncombe	37	47	48	54	58	63	64	69	68
Burke	8	10	9	10	13	12	11	13	15
Cabarrus	13	13	17	16	18	21	21	19	22
Caldwell	8	10	12	12	13	12	10	12	12
Camden *c*									
Carteret	9	9	10	7	7	6	7	6	7
Caswell	3	3	3	2	1	1	1	1	1
Catawba	8	10	9	12	12				
Chatham		6	1	2	2	6		14	15
Cherokee	3			9	6	7	9	8	7
Chowan-Perquimans						7	5	8	9
Clay *d*									
Cleveland	12	14	14	13	13	14	15	15	16
Columbus	8	9	8	8	8	10	12	12	14
Craven	8	10	14	14	14	12	14	18	15
Cumberland	8	12	12	17	20	20	22	23	22
Currituck	6	6	3	3	6	4	4	4	6
Dare *e*									
Davidson	11	12	12	12	13	13	15	13	17
Davie	3	6	6	6	6	5	6		
Duplin	5	8	8	10	10	9	8	9	7
Durham	16	15	18	24	26	28	31	32	38
Edgecombe	4	8	8	10	10	11	11	11	13
Forsyth	20	21	26	30	25	29	31	32	37
Franklin	8	10	10	9	11	11	11	10	10
Gaston	17	22	25	25	27	29	29	30	27
Gates	4	4	4						
Graham									
Granville	7	8	11	12	12	8	13	12	14
Greene	4	5	5	6	6	6	5	5	5
Guilford	39	54	62	64	65	56	58	59	62
Halifax	9	10	10	7	6	2	2	11	11
Harnett	13	16	18	19	15	14	17	17	16
Haywood	7	10	11	15	13	10	11	13	15
Henderson-Polk	10	11	15	14	14	17	17	11	14
Hertford	8	8	9	8	6	2		8	10
Hyde			5	8	6	6	6	7	7
Iredell-Alexander	19	18	18	18	17	12	9	9	14
Jackson	5	2	2					2	3
Johnston	9	11	15	13	15	19	18	18	19
Jones									
Lee								7	8
Lenoir	11	12	13	9	12	6	8	9	12
Lincoln	7	8	8	10	10	10	11	12	13
Macon-Clay	3	3	4	5				4	4
Madison	7	11	11	12			10	7	8
Martin	6	9	9	13	13	13	12	13	14
McDowell	8	7		8	4	5	6	6	7
Mecklenburg	31	37	54	51	57	44	50	63	69
Mitchell-Avery		3	4	7	4	5	5	4	2
Montgomery	5	6	8	7	9	7	7	8	6
Moore	17	2	14	10	11	21	21	13	16
Nash							1		19
New Hanover	15	20	21	23	21	21	22	31	28
Northampton	7	9	9	8	11	9	1	12	12
Onslow	3	4	4	4	6	11	10	12	10
Orange	1	1	1	1	1	1	1	8	
Pamlico	3	3	4	5	4	4	4	5	5
Pasquotank-Camden-Dare	11	11	10	10	11	12	12	13	15
Pender					2	2	2	2	
Perquimans *f*									
Person	6	7	8	9	9	10	11	11	8
Pitt	11	11	9	14	10	10	5	9	5
Polk *g*									
Randolph	6	6	9	9	10	8	9	7	12
Richmond	11	11	11	1	12	1	10		10
Robeson	16	24	24	20	15	22	23	35	24
Rockingham	2	5	5	1	16	16	16	18	19
Rowan	19	27	25	23	24	26	24	23	26
Rutherford	15	16	17	22	23	24	18	19	20
Sampson	7	9	11	10	11	11	12	12	14
Scotland	7	8	11	10	11	9	9	11	12
Stanly	9	9	9	8	11	10	11	11	13
Stokes	11	5	10	11	9	10	11	7	12
Surry	10	13	15	15	15	13	14	19	21
Swain	6	6	6	8					
Transylvania	8	4	4	1		5	5	6	7
Tyrrell *h*									
Union	9	14	14	14	14	15	16	17	16
Vance	6	6	8	9	12	11	11	11	10
Wake	39	42	44	49	53	56	54	41	53
Warren			2			4	5	5	5
Washington-Tyrrell	3	4	5	10	11	11	11	11	9
Watauga									
Wayne	10	10	13	10			16	19	13
Wilkes	6	7	8	8	11	11	6	9	8
Wilson	10	12	12	16	17	17	17	17	24
Yadkin	9	10	11	8	6	6	6	7	7
Yancey	2		4	3					
Totals	769	865	979	1012	997	996	1036	1133	1220

a See Iredell; *b* see Mitchell; *c* see Pasquotank; *d* see Macon, *e* see Pasquotank; *f* see Chowan; *g* see Henderson; *h* see Washington.

HONORARY FELLOWS, MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA.

H. T. Bahnson.....Winston-Salem
W. J. Love.....Wilmington
W. I. Royster.....Raleigh
George G. Thomas.....Wilmington
*Francis Duffy.....New Bern
*F. J. Haywood.....Raleigh
George W. Long.....Graham
R. H. Speight.....Whitakers
R. J. Noble.....Selma
D. W. Bullock.....Wilmington
L. H. Hill.....Germantown
L. J. Picot.....Raleigh
R. H. Lewis.....Raleigh
I. W. Faison.....Charlotte
C. E. Moore.....Wilson
Henry Tull.....Kinston
J. W. McNeill.....Fayetteville
W. P. Beall.....Greensboro
T. E. Anderson.....Statesville
R. H. Hargrove.....Robersonville
C. M. Van Poole.....Salisbury
H. T. Trantham.....Salisbury
D. M. Prince.....Laurinburg
A. W. Knox.....Raleigh
J. M. Baker.....Tarboro
J. L. Nicholson.....Richlands
T. T. Misenheimer.....Morven
M. H. Fletcher.....Asheville
H. Bascom Weaver.....Asheville
John Hey Williams.....Asheville
Willard P. Whittington.....Asheville
T. F. Pharr.....Concord
*Robert S. Young.....Concord
*L. M. Archey.....Concord
A. R. Wilson.....Greensboro
L. W. Hunter.....Sardis
John R. Irwin.....Charlotte
C. A. Misenheimer.....Charlotte
W. C. Galloway.....Wilmington
Richard Dillard.....Edenton
J. D. McMillan.....Edenton
John Whitehead.....Salisbury
Kemp P. Battle, Jr.....Raleigh
Roger A. Smith.....Goldsboro
Isaac A. Harris.....Buncombe
Isaac M. Taylor.....Morganton
*Charles Duffy.....New Bern

*Deceased.

N. M. Johnson.....Durham
T. F. Shaffner.....Winston-Salem
M. F. Fox.....Guilford College
W. W. Denny.....Pink Hill
J. L. Schonwald.....Wilmington
A. D. McDonald.....Wilmington
W. J. H. Bellamy.....Wilmington
J. W. Whitehead.....Salisbury
W. W. Faison.....Goldsboro
R. A. Freeman.....Burlington
Wright Hall.....Wilmington
W. D. McMullan.....Wilmington
W. H. Ward.....Plymouth
J. E. Nobles.....Greenville
J. W. Long.....Greensboro
Dr. G. T. Sikes.....Grissom
Dr. F. E. Asbury.....Worthville
Dr. G. S. Attmore.....Stonewall
Dr. Geo. L. Clark.....Clarkton

HONORARY MEMBERS, MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA.

L. McL. Tiffany.....Baltimore, Md.
W. W. Keen.....Philadelphia, Pa.
J. Allison Hodges.....Richmond, Va.
R. L. Payne.....Norfolk, Va.
J. N. McCormack.....Bowling Green, Ky.
J. C. Walton.....Richmond, Va.
R. L. Payne, Jr.....Norfolk, Va.
J. L. Ludlow, C. E.....Winston-Salem

OFFICERS FOR 1913-1914.

President—Dr. J. M. Parrott.....Kinston
First Vice-President—Dr. E. T. Dickinson.....Wilson
Second Viec-President—Dr. J. T. J. Battle.....Greensboro
Third Vice-President—Dr. E. Sevbier.....Asheville
Secretary—Dr. John A. Ferrell.....Washington, D. C.
Treasurer—Dr. H. D. Walker.....Elizabeth City
Orator—Dr. John R. Irwin.....Charlotte
Essayist—Dr. A. S. Pendleton.....Raleigh
Leader in Debate—Dr. D. S. George.....Marshallburg

COUNCILORS, 1913-1916.

Chairman—Dr. M. L. Stevens.....Asheville
Secretary—Dr. K. P. B. Bonner.....Morehead City
First District—Dr. J. L. Spruill.....Columbia
Second District—Dr. K. P. B. Bonner.....Morehead City
Third District—Dr. L. B. Evans.....Clarkton
Fourth District—Dr. M. M. Saliba.....Wilson

*Deceased.

Fifth District—Dr. Peter John.....Laurinburg
Sixth District—Dr. R. L. Felts.....Durham
Seventh District—Dr. A. J. Crowell.....Charlotte
Eighth District—Dr. W. M. Jones.....Greensboro
Ninth District—Dr. D. J. Hill.....Lexington
Tenth District—Dr. M. L. Stevens.....Asheville

For names of delegates and committees, see page 274, in the minutes of the House of Delegates.

OFFICERS FOR 1914-1915.

President—Dr. L. B. McBrayer.....Sanatorium
First Vice-President—Dr. J. J. Phillips.....Tarboro
Second Vice-President—Dr. C. W. Moseley.....Greensboro
Third Vice-President—Dr. S. M. Crowell.....Charlotte
Secretary—Dr. John A. Ferrell.....Washington, D. C.
Treasurer—Dr. H. D. Walker.....Elizabeth City
Leader in Debate—Dr. L. B. Evans.....Clarkton
Orator—Dr. J. M. Northington.....Boardman
Essayist—Dr. Mary E. Lapham.....Highlands

CHAIRMEN OF SECTIONS, 1915.

Surgery:
Chairman—Dr. John A. Williams.....Greensboro

Physiology and Chemistry:
Chairman—Dr. R. H. Lafferty.....Charlotte

Materia Medica and Therapeutics:
Chairman—Dr. F. A. Carpenter.....Statesville

Medical Jurisprudence and State Medicine:
Chairman—Dr. F. R. Harris.....Henderson

Gynecology:
Chairman—Dr. E. T. Dickinson.....Wilson

Obstetrics:
Chairman—Dr. D. A. Garrison.....Gastonia

Pediatrics:
Chairman—Dr. L. W. Elias.....Asheville

Anatomy:
Chairman—Dr. Hubert B. Haywood, Jr.....Raleigh

Pathology and Microscopy:
Chairman—Dr. R. N. Duffy.....New Bern

Practice of Medicine:
Chairman—Dr. W. A. McPhaul.....Lumberton

Hygiene, Sanitation and Preventive Medicine:
Chairman—Dr. W. J. McAnally.....High Point

Conservation of Vision:
Chairman—Dr. C. W. Banner.....Greensboro
Assistant Chairman—Dr. Louise Merrimon.....Asheville

PROGRAM

First Day, Tuesday, June 16, 10: 00 a. m., City Auditorium.

1. Call to Order—Dr. Albert Anderson, Chairman of Committee on Arrangements.
2. Invocation—Rev. J. C. Wooten.
3. Address of Welcome in Behalf of City—Mayor J. I. Johnson.
4. Address of Welcome in Behalf of County and State—Governor Locke Craig.
5. Response in Behalf of Society—Dr. D. J. Hill, Lexington.
6. President's Annual Address—Dr. J. M. Parrott, Kinston.
7. Report of Committee on Arrangements.
8. Report of Special Committees.
9. Announcements:
   House of Delegates.
   Board of Councilors.

PHYSIOLOGY AND CHEMISTRY.

DR. J. W. HALFORD, CHAIRMAN, LILLINGTON.

"*A Physiological and Pathological Consideration of Pain, with a Clinical Application.*"—Dr. J. W. Halford, Chalybeate Springs.

"*The Bio-Chemistry of Carbohydrate Metabolism, with a Physiologic Review.*"—Dr. William T. Carstarphen, Wake Forest.

"*Albumen in the Sputum.*"—Dr. C. H. Cocke, Asheville.

Title unannounced.—Dr. Lupton Pittman, Fayetteville.

Tuesday Afternoon, 2: 30 p. m., City Auditorium.

SURGERY AND ANATOMY.

DR. CHARLES T. HARPER, WILMINGTON, CHAIRMAN.

DR. J. L. NICHOLSON, RICHLANDS, ASSISTANT CHAIRMAN FOR ANATOMY.

"*Safety First.*"—Dr. Charles T. Harper, Wilmington.

"*Cases Illustrating Model Solution of Orthopedic Problems.*" (Moving picture and lantern slide demonstrations).—Dr. Michael Hoke, Atlanta, Ga.

"*Human Plumbing—Amelioration and Cure of Chronic Intestinal Stasis.*"—Dr. William Seaman Bainbridge, New York.

"*Diaphragmatic Hernia with Report of a Case.*"—Dr. Stuart McGuire, Richmond, Va.

"*Diseases of the Umbilicus.*"—Dr. A. M. Shipley, Baltimore, Md.

"*Surgical Indications in Neurasthenics.*"—Dr. G. F. Duncan, High Point.

"*Ludwig's Angina.*"—Dr. John T. Burrus, High Point.

Title unannounced.—Dr. Joseph Graham, Durham.

Title unannounced.—Dr. John Wesley Long, Greensboro.

"*The Etiology of Sterility in Women.*"—Dr. F. Webb Griffith, Asheville.

"*The Surgical Treatment of Asthma with a Report of Twelve Cases (with twelve cures).*"—Dr. W. Perry Reaves, Greensboro.

"*Rupture of Kidney with Report of a Case.*"—Dr. H. McKee Tucker, Raleigh.

"*Diseases Due to Improper Reduction of Fractures and Dislocation of Nasal Bones.*"—Dr. M. R. Gibson, Raleigh.

Title unannounced.—Dr. Parran Jarboe, Greensboro.

"*Eserine a Surgical Help.*"—Dr. P. R. MacFagden, Concord.

Title unannounced.—Dr. Paul Crumpler, Clinton.

Title unannounced.—Dr. C. A. Woodward, Durham.

TUESDAY NIGHT, 8: 30 O'CLOCK, CITY AUDITORIUM.

SURGERY AND ANATOMY—(CONTINUED).

"*Surgical Aspects of Auto-Toxemia.*"—Dr. T. M. West, Fayetteville.

"*Cholecystitis as a Sequel to Typhoid Fever.*"—Dr. J. F. Highsmith, Fayetteville.

"*Amebic Abscess of Liver.*"—Dr William Allen Charlotte.

"*The Pathology of Goitre and Hyperthyroidism (Illustrated).*"—Dr. Addison Brenizer, Charlotte.

"*The Use of Collargotris in the Diagnosis of Surgical Conditions, with Report of an Interesting Case.*"—Dr. A. J. Crowell, Charlotte.

Title unannounced.—Dr. J. W. Squires, Charlotte.

"*Atresia of the Vagina (Congenital Variety).*"—Dr. J. A. Williams, Greensboro.

Title unannounced.—Dr. H. M. Bonner, New Bern.

Title unannounced.—Dr. C. M. Strong, Charlotte.

Title unannounced.—Dr. R. L. Gibbon, Charlotte.

"*The Function of the Hospital.*"—Dr. C. D. Hill, Durham.

"*Closure of the Incision in Tiers with Three Removable Cables.*"—Dr. E. T. Dickinson, Wilson.

Title unannounced.—Dr. B. R. Graham, Wallace.

Title unannounced.—Dr. L. N. Glenn, Gastonia.

"*Report on My First Fifty Cases of Breast Cancer.*"—Dr. R. L. Payne, Jr., Norfolk, Va.

ANATOMY.

"*Some Pathological Anatomy of Lung with Report of Cure of Abscess.*"—Dr. J. T. Nicholson, Bath.

"*Appendicular Liver.*"—Dr. Richard N. Duffy, New Bern.

"*Anatomy of a Dislocation of the Elbow Joint.*"—Dr. L. J. Arnold, Lillington.

"*Surgical Anatomy of Regis Tonsilloris.*"—Dr. Addison G. Brenizer, Charlotte.

"*The Anatomy of a Fractured Forearm.*"—Dr. Edgar Long, Oak City.

"*A Reconsideration of the Anatomy of the Pyloric End of the Stomach as Regards Pyloric Ulcer.*"—Dr. G. H. Macon, Warrenton.

SECOND DAY, WEDNESDAY MORNING, 9: 00 A. M., CITY AUDITORIUM.

PRACTICE OF MEDICINE.

DR. I. M. TAYLOR, CHAIRMAN, MORGANTON.

"*Crotalin in Epilepsy.*" by Dr. C. L. Jenkins, First Assistant Physician, State Hospital, Raleigh; and Dr. A. S. Pendleton, Clinical Pathologist, State Hospital, Raleigh.

"Role of the General Practitioner in the Tuberculosis Problem in North Carolina."—Dr. P. P. McCain, Assistant Superintendent North Carolina Sanatorium for the Treatment of Tuberculosis, Sanatorium.

"Tuberculosis: The Cost of a Cure."—Dr. Thompson Frazer, Asheville.

"The Prevention of Mental Disease."—Dr. Paul V. Anderson, Richmond, Va.

"Recent Conclusions Regarding Paresis."—Dr. Isaac M. Taylor, Morganton.

Title unannounced.—Dr. Mary E. Lapham, Highlands.

Title unannounced.—Dr. C. A. Shore, Raleigh.

MATERIA MEDICA AND THERAPEUTICS AND PEDIATRICS.

DR. W. L. DUNN, ASHEVILLE, CHAIRMAN.

Dr. A. W. Calloway, Asheville, Assistant Chairman for Pediatrics.

"The Overlooking of Pyelitis as a Cause of Fever in Infancy."—Dr. Edward J. Wood, Wilmington.

Title unannounced.—Dr. F. L. Siler, Franklin.

"Summer Diarrhea."—Dr. Charles S. Jordan, Asheville.

"Syphilis in Children with Special Reference to Modern Therapy."—Dr. Lewis W. Elias, Asheville.

"Report of a Case of Typhoid Fever in an Infant."—Dr. Robert L. Felts, Durham.

"The Care of Children Between Infancy and School Age."—Dr. Charles Roberson, Greensboro.

CONJOINT SESSION

WEDNESDAY, JUNE 17, 12 O'CLOCK.

Conjoint Session of the Medical Society of the State of North Carolina and the North Carolina State Board of Health.

MEMBERS STATE BOARD OF HEALTH:

J. Howell Way, M.D., President.....Waynesville
Richard H. Lewis, M.D.....Raleigh
J. C. Ludlow, C.E.....Winston-Salem
W. O. Spencer, M.D.....Winston-Salem
Thomas E. Anderson, M.D.....Statesville
Charles O'H. Laughinghouse, M.D.....Greenville
Edward J. Wood, M.D.....Wilmington
A. A. Kent, M.D.....Lenoir
Cyrus Thompson, M.D.....Jacksonville

EXECUTIVE STAFF STATE BOARD OF HEALTH:

W. S. Rankin, M.D.....Secretary and Treasurer
C. A. Shore, M.D.....Director State Laboratory Hygiene
W. P. Jacocks, M.D.....Acting Chief, Bureau Hookworm Disease
P. W. Covington, M.D.....Chief, Bureau County Health Work
J. R. Gordon, M.D.....Chief, Bureau Vital Statistics
Warren H. Booker, C.E...Chief, Bureau Education and Engineering

ORDER OF BUSINESS:

1. Report of Work Accomplished and Recommendations.
2. Discussions.
3. Election of Officers.
4. New Business.
5. Adjournment.

WEDNESDAY AFTERNOON, 3:00 O'CLOCK, CITY AUDITORIUM.

ELECTION OF A BOARD OF MEDICAL EXAMINERS.

PATHOLOGY AND MICROSCOPY.

DR. J. B. POWERS, JR., CHAIRMAN, WAKE FOREST.

"The Flagellate Diarrheas."—Dr. C. W. Stiles, Wilmington.

"Filarial Elephantiasis in North Carolina."—Dr. James M. Northington, Boardman.

"The Occurrence of Yaws (Frambesia) in the United States."—Dr. Edward J. Wood, Wilmington.

"Amebic Dysentery."—Dr. Charles P. Bolles, Wilmington.

"Treatment of Amebic Dysentery."—Dr. William Allan, Charlotte.

"The Relative Toxicity of Different Anesthetics in Acute Experimental Nephritis."—Dr. William B. MacNider, Chapel Hill.

Title unannounced.—Dr. C. A. Shore, Raleigh.

WEDNESDAY NIGHT, 8: 30 O'CLOCK, CITY AUDITORIUM.

REPORT OF THE COMMITTEE ON OBITUARIES.

Dr. E. G. Moore, Elm City.
Dr. A. W. Knox, Raleigh.
Dr. M. L. Stevens, Asheville.

ESSAY.

"Conservation of Health."—Dr. A. S. Pendleton, Raleigh.

ORATION.

"Womanhood from the Physician's Viewpoint."—Dr. John R. Irwin, Charlotte.

THURSDAY MORNING, 9: 30 A. M., CITY AUDITORIUM.

MEDICAL JURISPRUDENCE AND STATE MEDICINE.

DR. J. T. J. BATTLE, CHAIRMAN, GREENSBORO.

"State Medicine."—Dr. W. M. Jones, Greensboro.

(Some subject of State Medicine).—Dr. B. A. Hocutt, Clayton.

"Medical Jurisprudence."—Dr. W. P. Beall, Greensboro.

"Proper Handling of Medical Defectives by the Courts."—Dr. L. B. McBrayer, Sanatorium.

GYNECOLOGY.

DR. W. B. MURPHY, CHAIRMAN, SNOW HILL.

"The Relation of the Ductless Glands to Gynecology."—Dr. Robert B. Slocum, Wilmington.

Title unannounced.—Dr. J. T. J. Battle, Greensboro.

"Preventive Appendectomy."—Dr. H. S. Lott, Winston.

"The Treatment of Pelvic Infections."—Dr. K. C. Moore, Wilson.

"Full-Term Extra-Uterine Pregnancy, with Report of Case."—Dr. Lyle S. Booker, Durham.

OBSTETRICS.

DR. K. G. AVERITT, CHAIRMAN, CEDAR CREEK.

1. *"The Proper Use of the Forceps in Obstetrics."*—Dr. K. G. Averitt, Cedar Creek.
2. *"The Relation of the Kidneys to the Causation of Eclampsia."*—Dr. R. B. Hayes, Fayetteville.
3. *"Practical Observations in Obstetrics."*—Dr. H. D. Stewart, Monroe.
4. *"Special Considerations in Surgical Obstetrics."*—Dr. Roscoe D. McMillan, Red Springs.
5. *"The Value of Pituitrin in Obstetrics."*—Dr. Seavy Highsmith, of Fayetteville.
6. *"A Plea for More Rigid Asepsis in Obstetric Practice."*—Dr. A. B. Croom, Maxton.
7. *"Recollections of Obstetrical Cases."*—Dr. W. H. Dixon, Ayden.
8. *Unannounced.*—Dr. J. V. McGougan, Fayetteville.
9. *Unannounced.*—Dr. L. B. Evans, Clarkton.
10. *"Report of a Case of Concealed Hemorrhage."*—Dr. A. S. Rose, of Fayetteville.

Minutes of State Medical Society

TUESDAY MORNING, JUNE 16, 1914.

Called to order by Dr. Albert Anderson, Chairman Committee on Arrangements.

Invocation: Rev. J. C. Wooten.

Address of Welcome: Mayor Johnson, of Raleigh.

Address of Welcome: Governor Locke Craig.

Response to Address of Welcome: Dr. Cyrus Thompson.

President's Annual Address: Dr. J. M. Parrott.

Appointment of Drs. A. A. Kent, J. L. Nicholson, W. S. Rankin and J. T. J. Battle as Committee to consider the President's address.

Papers read:

A Physiological and Pathological Consideration of Pain, with a Clinical Application—Dr. J. W. Halford, Chalybeate Springs.

Albumen in the Sputum—Dr. C. H. Cocke, Asheville.

On motion, it was agreed that the section on surgery and anatomy have separate meetings, on account of the length of the program and the impossibility of getting through with it in the allotted time.

TUESDAY AFTERNOON.

Dr. Parrott, President, in the chair.

Papers read:

Crotalin in Epilepsy—Dr. C. L. Jenkins and Dr. A. S. Pendleton.

Role of the General Practioner in the Tuberculosis Problem in North Carolina—Dr. P. P. McCain, Assistant Superintendent State Sanatorium for the Treatment of Tuberculosis.

Tuberculosis: The Cost of a Cure—Dr. Thompson Frazer, Asheville.

Recent Conclusions Regarding Paresis—Dr. I. M. Taylor, Morganton.

The Society, by vote, expressed its regret at the absence of Dr. Richard H. Lewis, Raleigh.

Papers read:

The Value of the State Laboratory of Hygiene—Dr. C. A. Shore, Director State Laboratory, Raleigh.

The Occurrence of Yaws (Frambesia) in the United States—Dr. Edward J. Wood, Wilmington.

The Treatment of Opiumism—Dr. S. M. Crowell, Charlotte.

Tuesday Evening.

Dr. Parrott in the Chair.

Papers read:

The Prevention of Mental Disease—Dr. Paul V. Anderson, Richmond, Va.

Summer Diarrhea—Dr. Charles S. Jordan, Asheville.

Syphilis in Children, with Special Reference to Modern Therapy—Dr. Lewis W. Elias, Asheville.

SECTION ON SURGERY AND ANATOMY.

Tuesday Afternoon.

Called to order by Dr. Harper, Chairman of the Section.

Papers read:

Safety First—Dr. Chas. T. Harper, Wilmington.

Diaphragmatic Hernia with Report of a Case—Dr. Stuart McGuire, Richmond, Va.

Report of My First Fifty Cases of Breast Cancer—Dr. R. L. Payne, Jr., Norfolk, Va.

Ludwig's Angina—Dr. John T. Burrus, High Point.

Rupture of Kidney, with Report of a Case—Dr. H. McKee Tucker, Raleigh.

The Surgical Treatment of Asthma, with a Report of Twelve Cases (with Twelve Cures)—Dr. W. Perry Reaves, Greensboro.

Diseases Due to Improper Reduction of Fractures and Dislocation of Nasal Bones—Dr. M. R. Gibson, Raleigh.

A Visit to the Surgical Hospitals of North Carolina—Dr. Joseph Graham, Durham.

Tuesday Night.

Dr. Harper in the Chair.

Papers read:

Cases Illustrating Model Solution of Orthopedic Problems—Dr. Michael Hoke, Atlanta, Ga.

Human Plumbing—Amelioration and Cure of Chronic Intestinal Stasis—Dr. Wm. Seaman Bainbridge, New York.

The Use of Collargotris in the Diagnosis of Surgical Conditions with Report of an Interesting Case—Dr. A. J. Crowell, Charlotte.

Cholecystitis as a Sequel to Typhoid Fever—Dr. J. F. Highsmith, Fayetteville.

The Pathology of Goitre and Hyperthyroidism—Dr. Addison Brenizer, Charlotte.

Atresia of the Vagina (Congenital Variety)—Dr. J. A. Williams, Greensboro. (Read by title.)

Anatomy of a Dislocation of the Elbow Joint—Dr. J. J. Arnold, Lillington.

A Reconsideration of the Anatomy of the Pyloric End of the Stomach as Regards Pyloric Ulcer—Dr. G. H. Macon, Warrenton.

Adjournment.

Wednesday Morning.

Dr. Parrott in the Chair.
Meeting of House of Delegates.
Papers read:

Filarial Elephantiasis in North Carolina—Dr. James M. Northington, Boardman.
State Medicine—Dr. Wm. M. Jones, Greensboro.
Oral Hygiene in Relation to Children—Dr. J. Martin Fleming, Raleigh.

Conjoint Session of State Board of Health and State Medical Society.

Wednesday Afternoon.

Dr. Parrott in the chair.
Adoption of resolutions of respect to Dr. Lewis.
Election of Board of Medical Examiners.
Papers read:

Cancer From the Standpoint of the Layman—Dr. W. F. Cole.
Wine, Spirits and Malt Liquors—Dr. J. T. J. Battle, Greensboro.
A Plea for More Rigid Asepsis in Obstetric Practice—Dr. A. B. Croom, Maxton.
The Value of Pituitrin in Obstetrics—Dr. Seavy Highsmith, Fayetteville.

Wednesday Evening.

Dr. Parrott in the Chair.
Report of Committee on Obituaries.
Papers read:

Essay: Conservation of Health—Dr. A. S. Pendleton, Raleigh.
Oration: Womanhood from the Physician's Viewpoint—Dr. John R. Irwin, Charlotte.

Thursday Morning.

Meeting of House of Delegates.
Report of House of Delegates.
Report of the Committee on the President's Address.
Report of the Committee on Nominations.
Resolution of thanks to the Committee on Arrangements.
Resolution of thanks to the newspapers.
Adjournment.

Transactions Sixty-first Annual Meeting Medical Society of the State of North Carolina

OPENING SESSION

Tuesday, June 16, 1914

Meeting called to order by Dr. Albert Anderson, Chairman of Committee on Arrangements.

INVOCATION.

Rev. J. C. Wooten, Raleigh, N. C.

Our Father, who art in heaven, we thank Thee for our doctors, for this conference of rich fellowship and mutual helpfulness in doing their work of love. We thank Thee that the mystery of sickness is breaking into the light of fact, and that these facts are being taught in the schools and homes of our people. We thank Thee for the application of science to the business of living, and pray that all our people shall not only know the laws of health, but keep them.

We are grateful that no plague nor scourge has visited us; that the healing of the body has kept pace with the healing of the soul, in that no one, however poor, is denied the service of the most skilled practitioner; that the blind are made to see, the lame to walk, and that all life is held sacred.

We bless Thy name for the high purposes of Thy servants, who come not to be ministered unto but to minister—who strive to prevent disease as well as to heal the sick. Grant that the authority of an enlightened community may enforce the laws of health, and that all men everyhere may have a more abiding appreciation of these honored servants of Thine.

Give to them wisdom, patience and a deep love for the work into which Thou hast called them. May they continue to grow in all knowledge which shall make this work more effective. Give them an eye of faith and a consciousness of Thy presence which shall make their visits a blessing to the soul.

Bless the homes and patients of Thy servants. Hasten the day when men shall know the truth which shall make them free.

We beseech Thee to send Thy rich blesings upon these young men who are just coming into the work, uphold them by Thy presence, strengthen them by Thy spirit, and make their lives rich in good deeds.

And when they shall answer the last call, through years of toil, sacrifice and genuine service, may they come to the Great Physician and find rest for their souls.

These blessings we ask in Thy name. Amen.

ADDRESS OF WELCOME.

Mayor James I. Johnson of Raleigh.

Members of the North Carolina Medical Society, Ladies and Gentlemen:

Since the city of Raleigh built this magnificent auditorium and presented it, as it were, to the citizens of North Carolina, there has been an added pleasure on the part of the officials of this city in welcoming those bodies of men throughout the State who have come here for their conventions and deliberations. You will pardon me for saying that to me personally there is a still greater pleasure in this privilege that is given me today in speaking to the medical men of North Carolina. I feel that I am almost one of you. I have always been in touch with your profession, and I have hardly known anything else in life. I was raised in an atmosphere of medicine and medical men, and having been a druggist all my life I have come in still closer touch with the physician. So I feel that I am speaking today to those with whom I have been associated all my life, and for whom I have the greatest affection and interest.

The medical profession of North Carolina today stands at the head and in the forefront of this profession in this country. It was in the old days, some years ago, that all your energies and efforts were bent towards the amelioration of suffering and the curing of disease. In this enlightened day you are spending your greatest efforts in preventing disease. We know that most deadly diseases are now preventable. A great deal has been done and is being done to prevent these diseases. Very great work has been done along that line and there has been a great improvement. All honor to the medical profession of North Carolina, that is doing so much to prevent the suffering and sorrow that come to their brothers and sisters.

You gentlemen of the medical profession naturally come in touch with everybody; you must see all sides and phases of life. By necessity you see the suffering and sorrow of life. There are also times when you see that part of life which is ludicrous. Sometimes those physicians that see all the sadness and suffering see things that brighten them up a little bit, and they see the jovial side of life.

I remember well an incident that happened to my father, who was a practising physician of this city for many years. In those days

country physicians were not so numerous as they are today, and the city physicians had to do a great deal of country practice, and on the occasion to which I refer my father was called to a patient in the country who was suffering with bilious fever. He prescribed calomel and quinine and directed the man's wife to give the quinine at certain intervals until his head rang from the effects of it and then to hold up the quinine until his return. When he returned he found the man in a dazed condition and of course asked the good woman if she had followed his directions in giving the medicine, she said she had, that she had continued giving the quinine, that she "'lowed" his head was ringing mighty bad, but she had listened good and she could not hear it.

Everything you gentlemen do, of course, is of vital importance to all the citizens of our State. Anything that tends to the amelioration of suffering and sorrow is vital to them and comes very close to them. You gentlemen occupy a position that no other citizens of the State can occupy. Everything you do is watched with great interest. I know that you will consider well all questions that come before you, and I am sure that they will be dealt with in the best manner possible.

After you have finished your labors and cut yourselves loose from the momentous questions and things you have to consider, let us entertain you here in the city. We believe that we can show you by a good many things that our city is progressing, that your city, the capital city of North Carolina, is keeping pace with other cities. We hope that you will enjoy yourselves while here, and take away with you such pleasing memories that you will be drawn to us again.

Dr. Albert Anderson: Ladies and Gentlemen, in the opinion of those of us who heard our Governor yesterday, he made the best health speech ever heard in these parts. Our Governor is here to welcome you in behalf of the county and State. He needs no introduction to a North Carolina audience, so I therefore present Governor Locke Craig.

ADDRESS OF WELCOME.

Governor Locke Craig.

I am very much obliged to Dr. Anderson for his introduction. I appreciate the privilege of welcoming this body to the city of Raleigh. Any place should welcome this Society because its meeting is significant of good to the people. Its meeting is significant of progress among the members of the Society themselves, and that means the welfare of the people of the whole State. There is no body of men that comes in closer touch with the people of the State, that comes into more intimate relation with all the phases of our life, than the medical profession. I do not

believe that the minister really gets as close, certainly not any closer to the family, nor in any more confidential relation to the family than the doctor. I know the lawyer does not get as close to the average family as the doctor does, because the average family keeps out of trouble, and the lawyer is usually intimate with those who get in trouble. It is about the same way with the doctor, too, the people never welcome the doctor so much as when they are in trouble, in serious trouble. It is then that all the money they have and everything they have in the world is at the disposal of the doctor and belongs to the doctor until they get well. Then they straighway forget what manner of man he has been.

But now we have arrived at that stage of our civilization when we welcome the doctor before the affliction comes. We have begun to look at the physician in a different light. The function of the physician has come to be very different from what it was a few years ago. A few years ago the function of the physician was to cure disease, now it is to preserve health. The latter duty—the preservation of health—is, of course, the greatest and most essential of all duties to society. The human race progresses very slowly in everything. Until a few hundred years ago people transported their merchandise, they traveled about the country, they had the same methods of conveyance, as the people of 6,000 years ago. When America was settled, merchandise was transported just as it was in the Orient. There had been no improvement. But a little less than a hundred years ago man got hold of a fact, not such a complicated fact, not such a hidden fact. It had been right before his eyes for centuries. The little boy with eyes in his head and thoughts in his brain saw the tea-kettle lid lifted by an invisible force. He studied about it until finally he invented a great big tea-kettle, riveted the lid down and drove great ocean liners across the sea. That force has been here before man since he placed fire under water and turned it to steam. It took a man a long time to build a house. For thousands of years he dwelt in dens like wild beasts, until finally he built a rude house of bark, and then he gradually learned to build houses, palaces and temples.

The medical profession has gotten hold of a great truth, a truth that has begun to revolutionize the world and the social conditions of man. That is the truth that the enemy that attacks the human body—disease—is not a mystery. Disease is not something that cannot be understood. Disease is in accordance with natural law. Disease, like all phenomena, is not an accident, not a visitation of some mysterious Providence or cruel fate, but in accordance with the same universal law that governs all social conduct, all social relations, and when the doctors, whether Jenner or Pasteur or some other, discovered that there were outside enemies

attacking man and inside enemies attacking man, they got hold of a truth that has revolutionized all medicine.

We build monuments on our public squares to great warriors, great statesmen. That is right. We ought to perpetuate the memory of great men and women. But the time is coming when, in the centers of civilization, we shall erect monuments to great doctors. I want North Carolina to have a place in the monumental history that shall be made to the physicians that have blessed mankind.

Pasteur, I believe, is the father of the modern theory of medicine so far as germs are concerned. He, like John the Baptist, was the voice of one crying in the wilderness and making the paths straight for the doctors to come after him and bless mankind. In the last few years the greatest diseases have been annihilated. Bubonic plague has been banished; smallpox, that visited countries as the very blight of death, is no longer dreaded; yellow fever, that forbade the nations of the earth to construct the Panama canal, is no longer dreaded by any civilized city in the world. For the conquering of them has opened the way to the conquering of all the enemies of the human body.

You gentlemen are the ones in whose keeping is this great work for the blessing of mankind. All human endeavor, all human energy, all intellectual, all moral development, is dependent to a large extent upon physical development. Strengthen a man physically, make him robust, and he is in a condition to receive the gospel and to be exalted. He will be a better citizen.

The banishment of hookworm disease has transformed many a home from a home of despair into a home of hope. So with all diseases. Before you, my friends, is one of the greatest of all problems—the conquering of the plague of tuberculosis. It has been ravaging our land, causing more deaths, more destruction, more sickness than all the wars of the earth. It is for you gentlemen to triumph over that, and I have no doubt you will. I have no doubt because you have lifted up the outer covering of things—looked in the causes of things. You, like all men that have blessed the world, work not for money. You have felt that thirst which no beast can know, have felt that yearning for the good of man that no animal has felt. It is the doctor that braves the storms of night and the winds of winter as he goes to his duty, without reward, without even the reward of ever being known on earth. It is that desire to do good that has inspired all men that have done anything good in the world. The doctor has more opportunities for his humanity to be stimulated and excited, to be cultivated, than almost any other profession. Therefore, the men that constitute this profession ought to be the very salt of the earth.

There is no need for me to speak for Raleigh, as the Mayor has already spoken, but I do join in his welcome to you to the Capital City, the most hospitable city in North Carolina. They extend hospitality to all worthy people. There is a high tone of citizenship, a high tone of morality, and a high tone of real worth in this capital city of which I, as a citizen of North Carolina, am proud. It is a part of the very atmosphere of this old Capitol that has grown here since its foundation stones were laid. All North Carolina welcomes your meeting and hopes that your meeting will result in good, in progress for the medical profession. They know that, in doing that, it will result in good to all mankind.

I thank you, Mr. Chairman and gentlemen, for this opportunity to speak to this noble body of doctors.

Dr. D. J. Hill, of Lexington, not being present, Dr. Cyrus Thompson, of Jacksonville, was asked by Dr. Anderson to respond to the addresses of welcome.

RESPONSE TO ADDRESS OF WELCOME.

Dr. Cyrus Thompson, Jacksonville, N. C.

My good friend, Dr. Anderson, in introducing me, expressed his regret that our friend, Dr. Hill, who was on the program to make this response, is not here. I know that Dr. Anderson is sorry that Dr. Hill is not here, but he is not half as sorry as I am. I am reminded of a primary canvass in my own county lately, where a man who had held office for twelve years and wanted to keep on holding it, told the people how much he loved them; and his opponent said: "I have no doubt he loves you as much as he has said; he has much cause to love you, but I really believe that if you would do for me only half what you have done for him I could love you twice as much." I am filled with regret not only because of the absence of Dr. Hill, but because on taking his place I am compelled to speak at off-hand and entirely without preparation, a thing unusual for me. I am to speak and I am in the predicament of the fellow who got up and said: "Ladies and Gentlemen, there are only two in this world who know what I am going to say, and that is me and the Lord." Then becoming a little confused, he said, "Ladies and Gentlemen, conditions have changed; there is now only one who knows what I am going to say," and taking a sip of water and giving a hesitant cough, he said, "That is the Lord, and He won't tell me a single word of it."

There are a great many unfortunate things in the calling of a doctor; I am now confronted with one of them. But there are two especially fortunate things in being a doctor; one of them is, that if you do not

know what is the matter with your patient it is dead certain that he does not know, and that he and his friends will take your word for it. Death is a very silent partner, who keeps his mouth shut until the poor fellow crosses the great divide, and we don't know that he tells him any better even then. Another fortunate thing is this, that wherever the doctor goes, he is always welcome. I never in my life go to a place where I am not welcome. They always say: "Doctor, I am so glad to see you." The life of a doctor, therefore, is a very charming life, notwithstanding the burdens incident to it. As some of the older of you may remember, I have been in politics some. There is a charm and a fascination about a political life, but for genuineness and richness of living, the politician never comprehends the joy of living that every day comforts the common, country practitioner. I have a very profound respect for the calling of the common practitioner of medicine. I do not know now that we shall all go to Heaven, but I do know that every conscientious practitioner of medicine shall deserve to go there. And even if we go to Hell I know that we shall not be satisfied at the end of our journey. On the contrary, I know that there will be many politicians who will go there and be satisfied.

My estimate of our calling is such that I doubt if there is more genuine religion in the pulpit than there is in the profession of medicine in North Carolina, or elsewhere. When it comes to the story of the hold-up in the Jericho Canon, as Collier Cobb puts it, the preacher man may go on the other side and the lawyer man and politician may go on the other side, but the physician always comes face to face with the injured traveler; says, What in the devil is the matter with you, my friend? puts him on his own beast, carries him to the inn and takes care of him, even at his own cost. If the spirit of fellowship is growing in the world today it is due to the altruism common to the profession of medicine throughout this land and throughout the world. I say, therefore, that we ought to be welcome, and I know that we are welcome everywhere.

So, I thank you, Mr. Mayor, and Mr. Governor, for the cordial welcome that you have given us to the city of Raleigh this morning; as for myself, permit me to say that if there is any place I like to go to it is the city of Raleigh. This city is preëminently the capital of the whole State of North Carolina. We recognize that it is a great and growing city, a remarkably hospitable city. I love Raleigh. Some time ago when it was seen that the date of this meeting conflicted with the date of a political meeting and our President wired me, among others, to know what should be done, I said this to him: "Change the date, but hold on to Raleigh." When someone says to me, "Go to Raleigh," I always feel like the average North Carolinian feels when someone says, "Go, or send,

to Norfolk." My love for this place, since the schooldays of my boyhood, has given to me a very sincere appreciation of that statement of David, wherein he said, "I was glad when they said unto me, 'let us go up unto the house of the Lord.'"

Some fifteen years ago when I was on the opposite side in politics I lived here a citizen and public official. I was as jealous of the honor of North Carolina as any man who lived within its borders. Everybody, irrespective of party affiliation, was always kind to me; some of them did not like my politics, but they liked me, and said that I was the meanest and best Republican that ever lived in this good city. So, I am glad to come to Raleigh and be among my friends. I am glad that the medical profession of the State of North Carolina assembles in the city of Raleigh; a profession preëminently humane, that seeks the infinitely small for the good of humanity, but is always mindful of the everlastingly and infinitely great. I so love the city of Raleigh that there are just three places where I could live contented: My ancestral county of Onslow, where I have lived for the last one hundred and sixty years, the city of Raleigh, and Heaven. I would choose them in the order in which I have named them. You might ask why I put Heaven, the best place, last; for this reason: because, if I go there I am not absolutely certain that I would have all my friends with me, and I should regret exceedingly to be parted from my friends.

Now I am through, and I only wish again to thank my friends, the Mayor of the city of Raleigh and the Governor of North Carolina for myself and for the profession, for their cordial welcome to the hospitality of this good city.

Dr. Anderson: I now have the pleasure of presenting your President, Dr. J. M. Parrott, who will deliver his annual address.

THE PRESIDENT'S ANNUAL ADDRESS.

James M. Parrott, M.D., Kinston, N. C.

In obedience to the mandates of our by-laws, and in accordance with the usages of our organization, it becomes my duty to submit the President's annual address. The year now drawing to a close has witnessed the broadening of the scope of doctors' work and has crystallized many of our rather indefinite ideas into life's realities.

In the very beginning of my address I am pleased to call the attention of the Society to the unusually able presidential address of Dr. Kent, delivered at Hendersonville two years ago. This wise and courageous leader advised that we seek more cordial relations with other societies. His argument was convincing and I beg to ask the Society to give his

recommendations renewed consideration. I am convinced Dr. Kent exercised his unusual mental acumen to fine purpose in making these suggestions, and if put into early effect will greatly benefit our profession and the State at large.

The usefulness of any organization is measured by the objects which call it into existence and the manner in which its duties are performed. Modern life with its practical conception has made it clear that the duties of the physician, either individually or collectively, are threefold: First, his relation to the public; second, his relation to the profession as a profession, and, third, his relation to his confreres. Humanity's demand for improvements determines our professional attitude towards public matters as well as private affairs, and in response to this, our sect has become at once progressively aggressive in its relation to the public and the public welfare. As a profession, as well as individually, we are greatly interested in the work of our public institutions, and especially those that are under the control of physicians, or which have been established for mental or physical relief.

We point with pride to the four classes of state hospitals which have been founded, viz., for the deaf, dumb and blind, the insane, the feeble minded and those suffering with tuberculosis. While we, as an organization, have no legal relation to them, the causes which produce the diseases or defectiveness which make these institutions necessary emphasize our responsibilities to them.

Deaf, Dumb, and Blind.—Nothing appeals to us more than the deaf, dumb and blind. Many of these cases can be prevented. In this work doctors have a high and sacred duty to perform. I sincerely hope that increased attention will be paid to the prophylaxis of deafness, dumbness and blindness. Remember the little ones, gentlemen, and increase, please, your diligence in preserving the special senses. To cure is splendid; to prevent is Godlike. I hope our annual gatherings will be attended regularly by all the superintendents of the state institutions for the unfortunates of whatever class or race. Frequently Mr. John E. Ray, the unusually able and much loved superintendent of the institution for the blind at Raleigh attends our gatherings, much to our pleasure and profit. We appreciate his visits.

Tuberculosis Sanatorium.—The tuberculosis sanatorium at Montrose already has done a great deal of good in spite of its rather checkered career. It is well located and in time will prove of inestimable benefit to our people. It is now in much better shape than ever before. It has recently come under the immediate care of the Board of Health, and has at its head as superintendent one of the ablest health men in the South, Dr. L. B. McBrayer. Dr. McBrayer has had a broad ex-

perience in sanitary work, and is especially well equipped to discharge the manifold and irksome duties of his office. The tuberculosis work in North Carolina is now in good hands. I congratulate the State Board of Health and the State at large on Dr. McBrayer's selection.

It is high time to take the progressive steps projected by the Board of Health in dealing with tuberculosis. It is a disease which is frequently acute, most often chronic and always degenerative. The educational value of the State institution will prove to be very great. No one can overestimate the good to be accomplished by properly training the consumptive how to live. If for no other reason, this feature of the tuberculosis institution will more than repay all the money which has been, or will be, spent on it. We do not, however, have to depend on this feature of the work alone to justify its existence. We have every reason to believe that ours will soon equal, in smaller proportions only, the work done by older and larger sanatoriums for this dsease, and we can in all fairness expect equally good results. From its beginning to a recent year, Gaylord Farm Sanatorium had cost $278,000 and the patients who had been restored to health there had earned $706,000 and have a capacity appraised at two and a half millions. These figures are at once striking and convincing.

Practically one death in nine is due to tuberculosis. Its death rate equals that from typhoid fever, scarlet fever, smallpox, diphtheria, cancer, diabetes, appendicitis and menengitis. There are approximately 500,000 sick from it all the time. Fifty per cent of the deaths from it occur during the prime of life, the money and time spent in preparation for life's work then availing nothing. It brings sorrow and poverty, and frequently leaves children wards of the state, or mayhaps preys for degeneracy, crime and prostitution.

By education and otherwise, the death rate from tuberculosis has been reduced from 200 in 1900 to 149 in 1912. The state has made no mistake in erecting the institution for this disease; on the contrary, it is the highest evidence of constructive statesmanship. Its care has been committed to the medical profession, and happily will we bear the burden, and proudly will we meet our obligation. With confidence I appeal to the profession for its hearty response and support for this sanatorium.

Feeble Minded.—The School for the Feeble Minded is about to open. It is ideally located with healthful surroundings, and all the natural advantages which the heart can desire. It will begin under the direction of Dr. C. Banks McNairy, who comes to his work highly endorsed and with such prospects of success as to inspire the confidence of those of us who have met him. I am sure he will prove worthy of the high trust

which has been imposed in him. With the coming of this institution another ideal has been crystallized and another responsibility has been placed on the medical profession and manfully will we meet this added duty. The institution bids fair to prove an unusual blessing. It will fill a long-felt want, and will serve to reduce the burden of many an all but crushed heart. The defective children appeal to us and their helplessness is a call to us to service. We will study with renewed diligence the cause of child defectiveness, and the methods of preventing the same.

We have no exact data as yet as to the number or percentage of increase of this class of unfortunates in North Carolina. The fact that in Minnesota the population increased 59 7-10 per cent from 1884 to 1904, and feeble-mindedness 380 per cent, is indeed startling. There is no doubt in my mind but that the State is amply justified in creating this institution. We are doing too little for our defective children. The United States Government spends fourteen or fifteen million dollars annually teaching how to treat the soil, and cattle, and horses, and hogs; it ought to be impressed with the importance of spending something in teaching how to raise good men. This generation can resolve what the next will be. We must remember that we are largely what our ancestors made us and, therefore, we must be cautious lest our children will think the less of us. While I shall not discuss eugenics or euthenics, I will call your attention to the fact that this generation can say in a large measure whether those that come after shall be more or less criminals, mental defectives, or physical wrecks.

Insane Asylum.—Our profession is, as is the case with the deaf, dumb and blind institutions, very much interested in our hospitals for the insane, and especially so in the causes of insanity. Mental derangement is a very serious matter economically, as well as socially. It is now costing the State of North Carolina nearly one half million dollars annually to care for the insane in the state institutions. The cost of maintenance is increasing at about four per cent per annum. There are 3,100 inmates, and about 500 out of the hospitals who ought to be in the institutions. This estimate includes epileptics and certain other mental defectives. Insanity is increasing the nation over at a rate of about six per cent. We have reason to believe that conditions in North Carolina are about the same as in every other state. It is not only interesting, but a matter of vast importance, to note that the best authorities claim that 50 per cent, or one half of the cases of insanity, can be prevented even with our present knowledge of its causes. The physician has to do with diseases which cause mental derangements such as general paresis, and he can wield a great deal of influence for

good in checking many of the other causes such as social vices and the use of alcohol, which produce a vast number of cases of insanity.

During the recent winter, there was organized at Raleigh a Mental Hygiene Congress largely through the efforts of the distinguished Superintendent of the Central Hospital, Dr. Albert Anderson. The purpose of this organization is to educate the public as to the causes of insanity, and thus check its inroads. This organization has started under the most favorable and propitious circumstances, and I feel justified in giving special emphasis to its work.

Before leaving this subject, I feel that I should direct your attention to the fact that the early recognition of cases of insanity is a matter which should receive more consideration. Eighty per cent of the cures occur in those cases which are recognized and for which treatment is begun during the first year. While we have made great improvements in the handling and treatment of cases of insanity, yet, in my judgment, we are not doing in North Carolina all that should be done. Certainly those in authority are accomplishing everything that could be expected of them under the circumstances and with the funds at hand. In my opinion, the trouble is really due to the attitude of the public to insanity. Almost every one thinks that it is incurable, and that the best that can be done for the poor unfortunate is to make him or her as comfortable as circumstances will permit until death comes to the rescue. This attitude is an erroneous one. I believe that more cases of insanity should be cured than are being cured, and I believe that an appropriation of more money on the part of the State to our institutions will show a marked increase in the percentage of cures. The public must be brought to realize the fact that, in order to obtain the best results, more money must be appropriated. If we simply propose to conduct our State hospitals as detention camps, then we are doing as well as anybody can expect. For my part, however, I believe that more effort should be made to cure. In view of these remarks, and in justice to all concerned, I should state, and I know whereof I speak, that the superintendents, their assistants and nurses of our State institutions are wise, cautious men, and are diligent in the discharge of their duties. I believe that the medical profession can do North Carolina a great deal of good, by supporting the Mental Hygiene Congress and otherwise impressing upon the public the desirability of increased study not only as to causes of insanity, but the problem of curing as well. In this connection, I desire to especially commend the action of the Directors of the Central Hospital at Raleigh in instituting a pathological department for the study of individual cases and for research work. This

work, I am sure, will count for much in restoring these poor afflicted to their mental health.

School Hygiene.—We are just beginning to realize the value of School Hygiene. In one city a recent examination showed that 42 per cent of the children had defective teeth, 28 per cent defective tonsils, 18 per cent defective eyes, 13 per cent were mouth breathers, 8 per cent had adenoids, and 8 per cent enlarged glands. It is estimated by good authority that 34 per cent of the school children of Baltimore are "repeaters," due to physical defects. A large part of one-third of the money which is thus being wasted would be saved. This is a valuable consideration from an economic standpoint. However, this is its least value. Think what it would mean if the physical defects of these children were removed. Of course, there is only one practical way to handle this question, and that is to have compulsory inspection of the school children. It is high time that the public was being educated along this line. The enumeration of the various sanitary defects in school children would be almost an enumeration of all the diseases to which the human flesh is heir. The simple suggestion as to the transmission of tuberculosis, measles, whooping cough, scarlet fever, *et cetera*, in the schoolroom and on the playground is sufficient to impress any thinking man with the desirability of improved school hygiene. It is a well established fact that defective children in the open air with very favorable sanitary surroundings, though working one half of the time of the other children, show really more marked advancement than the healthier ones. While, of course, so far as the open air *per se* is concerned, it is not as important in North Carolina as it is in the larger cities, because of the poorer construction of our schoolrooms, admitting as they do, volumes of fresh air all the while, it indicates the very great value of school hygiene and what can be done by intelligent health work towards increasing the effectiveness of schools, and decreasing the number of diseases transmitted at the school house. I recommend the appointment of a committee to give this matter consideration, and to report its findings and such recommendations as it may deem wise to make to the Society at its next annual meeting.

Oral Hygiene.—Up to the present time, North Carolina has not paid the attention to oral hygiene which the subject deserves. A very high authority suggests that the next great step in preventive medicine devolves upon the dentists. I haven't the temerity to dispute this. I am sure that the question of dental hygiene is a very important one. We must stand for it to relieve suffering, to improve the digestive capacity, as well as the beautification of the race. Statistics show that

it requires children with bad teeth six months longer to complete the elementary school course than those with good teeth. Sound, good teeth mean frequently, yea more frequently than we think, a sound, good man. Dentists should be able to assist us in studying this phase of hygiene. A closer relation, for this as well as for other reasons, should exist between doctors and dentists than now. Such a relation can but result in good to both professions, and will further oral hygiene to a marked degree. I advise that a committee of five be appointed to report at the next meeting, instructed to investigate this entire matter and to make such recommendations as it may deem advisable.

Nurses' Home.—On an occasion, when returning from a victorious campaign, a noted general was being showered with praise and congratulations. Said he, in reply, after thanking them for their compliments, "The credit is not due so much to me as it is to my lieutenants, and not so much to them as it is to the men behind the guns; for," said he, "however well laid my plans might have been, had they not been promptly and courageously carried out, they would have come to naught." Often, after a long fight with an attack of typhoid or other serious illness, I have thought when the suggestion was made that I had done well that perhaps it was not so much to my plans, however well laid they may have been, as it was to the capable and faithful nurse who carried out my commands through the long campaign. The doctor owes a great deal to the nurse, and I pause here to pay my tribute to the nursing fraternity. Nursing must be recognized as a profession of the highest and noblest order. I do not think that the nursing laws in North Carolina are as stringent as they should be from an idealistic standpoint. No doubt they will be improved as soon as practical. In the meantime, a very serious duty devolves upon the doctors in assisting the nursing profession, and in helping those who are making a strenuous effort to do so, to raise the standard of nursing in North Carolina. I feel that I cannot say too much in behalf of these noble women. I regret that in this, my annual address, I have not the time to give the subject of our relations, duties and responsibilities the consideration which the importance of the subject demands. Before I pass from this topic, I wish to call your attention to the Nurses' Home for those who have tuberculosis, built near Black Mountain. The institution is known as Dunnwyche, named for two noble women who have so much endeared themselves to the public and to their coworkers. At this home nurses receive attention at really less than cost. We must remember that most of the nurses are poor girls, and the construction of this institution was born of the noblest purpose, namely, to assist those who could not help themselves. As I understand it, this nurses' home

until now has struggled under the burden of a large debt. This debt has been paid, but physicians can do a vast service for those girls by giving this home our financial support when occasion arises, and our moral support at all times. From now on, gentlemen, the nursing profession will walk hand in hand with that of medicine. The nurse who engages in social service work, visiting the poor, aiding the afflicted, comforting the sorrowing, cheering the saddened, will be a colleague of Dr. Wm. McClure. I urge that some means be inaugurated by which our organization can be more closely in touch with the organization of the nurses.

Rural Sanitation.—In this progressive age, many matters and many opportunities for service press themselves upon us. It seems that each is more essential than its predecessor. When you remember that North Carolina is eighty per cent rural; that we are most largely an agricultural people and live in the great outdoors; that our rural sanitary conditions are very bad and rural mortality very high, I am sure you will agree with me that we are giving, even in this age when many vital matters are pressing us for attention, too little consideration to rural sanitation.

The hookworm workers are doing a great deal of good in disseminating hygienic information and in this line of endeavor, along with their particular work, are rendering North Carolina a service the value of which very few of us realize. The doctors of North Carolina are giving the gentlemen in charge of this particular work their support. Aside from this, however, what are we doing to improve health conditions in the country? We have the best of soils, the finest of climates, limitless manufacturing possibilities; we have a homogeneous people, kindly and humanity loving. There is no reason why we should not have a rural health condition which closely approximates the ideal. We cannot afford longer to neglect this matter. I am convinced that our best work can be done along this line. It represents a problem of special difficulties and can only be solved by special study. My sense of appreciation impels me to pause just here "to render unto Cæsar the things that are Cæsar's." In the wilderness of rural sanitation, one voice has cried out, cried long and well. This man's work along this line stands out preëminently for work well done, efficient service well rendered. We delight to honor him. I refer to Dr. C. W. Stiles, and I take this opportunity to say to him that the people of North Carolina and North Carolina's medical profession appreciate his services. After giving the question of improving health conditions in the country districts unusual consideration and very serious thought, I am impelled by my better judgment to urge, yea, even insist, that our Society appoint at this

session a committee of five whose duty it shall be to study the necessities and problems of rural sanitation, and to report their findings, together with such recommendations as they see fit to offer, to our next meeting.

Vital Statistics.—I want to call your attention to a matter of real concern, not only to the people of our state, but to the profession also. It is a matter of much more than passing moment, and I regret that I cannot dwell on it to the extent its importance demands. I refer to the vital statistics law. It is almost, if not quite, a vital matter to all health work. I wish I could impress those physicians who have not already appreciate its value with the importance of this law. According to recent census, the death rate in North Carolina is 16.8, the highest of any state save New Hampshire, and is within three decimals of that. Our death rate is practically double that of Washington, which has the lowest—8.5. Says the *Journal of the A. M. A.*: "It is significant that the four states in the registration area which have a colored population of over ten per cent, Kentucky, Maryland, North Carolina and Virginia, should average 15.0, while a group with equal population but fewer colored, Wisconsin, Washington, Vermont and Minnesota, average 11.5." The Atlanta *Journal* recently has well said: "It is a significant fact that the health record of the United States has steadily improved, as the registration area for vital statistics has increased. In 1880, when the registration area included only 17 per cent of the population, the mortality rate was 19.8 per thousand. In 1900, when the registration area had extended to 37.9 per cent of the population, the mortality rate fell 16.5 per thousand. In 1910 the mortality had dropped to 15 per thousand, the registration area having risen to 58.3 per cent. In 1912 bureaus of vital statistics had been established in a majority of the states and covered 63 per cent of the population; in the same year, interestingly enough, the death rate was only 13.9 per thousand, up to that time the lowest record." The vital statistics law is the key to all sanitary work, and as soon as thoroughly understood and we become accustomed to it, we will recognize its worth, and its apparent burden will be lessened, if not entirely disappear. I appeal to every doctor in North Carolina to give this law his earnest and cordial support.

The Press.—Precedent is to be respected; however, ancient usages are frequently as harmful as good. I possess a natural diffidence to accepting the new and I try not to "be the last to lay the old aside." As times change, new conditions arise and all progressive citizens will endeavor to be rid of the evil of the old and to possess the good of the new. Usage prevents the doctor from using public print, and in most

instances does so rightly. However, there are times and conditions under which the press can be of service for great good, both to us and the public. It seems to me that we need a revision of our code of ethics along the lines of relations of the doctors to the newspapers and public print. I have no special recommendation to offer along this line, but the time is rapidly coming, if not already here, when we shall have to use this splendid agency for good more liberally than at present. This suggestion will furnish food for further thought. I only mention it now that it may have your consideration to the end that it can be solved aright when the question finally arises, as arise it will "with the broadening of the suns." A closer relation with the newspapers can but be beneficial if that relation is properly safeguarded. Newspapers are our most powerful beneficial agencies when properly used. They can make us better understood and can help us to an immeasurable extent in our great work as sanitarians and publicists.

Sociology.—One of the chief, if not the chief characteristic of this age is the effort to improve the social condition of men. More forcibly perhaps than in any other period of history have sociological questions been brought to the forefront. In all work of this character, doctors, since they are good members of society, are interested, but there are some of these with which they are especially concerned. Indeed several are all but crowding themselves upon physicians, and we cannot escape them if we would. I am happy to say that we would not if we could. Of the very first importance is the one arising from the so-called social vices. We all know the cause of general paresis, and understand just what general paresis means. The records of the insane asylums show that over 17 per cent of the inmates are there because of this malady. It is unnecessary to call the attention of this gathering to the many other damages done by syphilis. The mere mention of the word gonorrhea drags before the memory of the doctor the most hideous of all scenes. Its blighting effect is manifest in many sterile homes, numerous bed-ridden or nervous women attest its damning effects. It has laid its deadly hand on many a noble boy and left him, if it left at all, to limp through life, all prospects blighted, to an early grave. You and I have seen it touch the fairest of earth's fair flowers, and wither them in a blight, and then, cormorant-like, yet unsatisfied with stealing happiness from mothers, joy from wives, and health and life prospects from men, have we watched it stretch forth its talons and strike to its lasting ruin the babe in the cradle. Men and brethren, can we deal it too hard a blow? Let the blind and maimed answer, let its gnarled and deformed victims speak, let blighted hopes tell their mournful story.

We can't dodge the issue by saying "boys will be boys," nor can we justify indifference by crying, "Oh, he is just sowing his wild oats." The root of the evil, in my judgment, lies in that peculiar distorted public opinion which permits one standard for men and another for women. Only by precedent and custom can this double standard be justified. Let us remember that often precedent and custom have ruined many a home, and consigned to the graveyard of the nations many a people. The mere statement that there are 300,000 prostitutes in the United States, and these registered, and two millions plying their awful trade clandestinely to the cost to society of three billion dollars a year, one billion more than our drink bill, sends an arrow of sadness to the very heart of a right thinking man, and justifies the time and careful consideration of any gathering of citizens, and more especially doctors. Folks must be educated out of the horrors produced by the arch vice of this day—the double standard of virtue so-called, as though virtue could have any other than one standard. The knowledge and influence of physicians brings to them a responsibility, and this responsibility can be met in no better way than by preaching virtue. The medical profession must drag its sixteen-inch guns to the top of 203 Meters Hill and turn them on this Port Arthur of social vices and drive them to surrender or smash them to smithereens.

Drug Habitues.—There is a matter to which I wish to call your attention which stands out preëminently as one the evil of which we recognize, but scarcely realize. I refer to the drug habit. The poor victims are seldom rescued and of all earth's unfortunates are almost, if not quite, the most pitable. Man's safety from this danger, and finally disease and ruin and death, is in prevention. More drugs are used illegitimately per capita in the United States than in any other nation. The commerce in cocaine, opium and its alkaloids approximates that of that notoriously drugged nation, China. In 1906 $4\frac{1}{10}$ per cent of the Chinese were opium smokers. At that same time $4\frac{4}{10}$ per cent of the population of the United States were drug habitues. Has the time really come when China should send its emissaries to us and teach us not to use drugs?

It is a well known fact that cocaine is more dangerous than opium, both to the user and to society. Authorities tell us that 92 per cent of the cocaine used is used illegitimately. The value of coca leaves imported in the United States in 1898 to 1902 was approximately $832,000, from 1902 to 1907 it had doubled, reaching over $1,500,000. The cocaine fiend is an unusual menace to a community and it is a matter to which the attention of our lawmakers has already been directed, but the execution of such laws has not been as strict as it should be, or else the

law itself is grievously at fault. The federal government should supplement the state with national laws. These are badly needed. I sincerely trust that the laws relative to the use of drugs, and especially cocaine, will be amended and made effective. The physician can be of much value and assistance in this matter, and I urge that it be given careful consideration.

Intoxicants.—Closely allied in many respects to drug using is that arch enemy of the human race—alcohol. It is not my purpose to discuss the harmfulnes of liquor. There is not a doctor in the world who does not know that there is more harm than good in it. Every intelligent man knows that it is ten thousand times more destructive than war; that it has no food value; that it causes more crime than all other agencies combined; that it defies nature, curses God; that it lowers vitality, invites disease; that its deadly breath blows out the mental flame of one out of every four who sit in mental darkness; that not satisfied with cursing homes, stabbing hearts, blighting hopes, damning souls, it shoots the forked lightning of its blasting cursedness beyond life as it lives into the future and takes its awful toll of progeny even to the fourth and fifth generations. It is more to be dreaded than a mad dog. On every occasion it should be booted and the boot thrown away.

As a medicine, in the opinion of many of our greatest doctors, it practically has no value. The great weight of scientific evidence leads to the conclusion that alcohol is an unmitigated evil. It is about, if not already, to be eliminated from the Pharmacopœia. The figures gathered by the State Board of Health show that only about three-fourths of a tablespoonful per year per patient is prescribed by our best and highest class physicians. That it is not efficient as a medicine is easily shown by the fact that many of our best doctors never prescribe it at all. There are a number of cities in North Carolina in which it is not kept at the drug stores, and where no prescriptions have been written for it since State-wide prohibition went into effect. When the Legislature permitted doctors to prescribe intoxicants for *bona fide* patients, it gave them unusual power and confided in them a fiduciary trust. This confidence must be kept inviolate. So long as this trust is reposed in us, we must not prove recreant to it. He who breaks it is worse than an Achan.

In view of our present knowledge, why should intoxicants be sold even as a drug? In all reason, I can see none. Its last refuge in this good time is behind the cloak of the doctor. Knowing the high regard in which our profession is held, in this hour of its extremity it shields itself behind the medical profession and cries "Intoxicants are good medicines and the doctors prescribe it." It is not a good medicine, and

I for one want to see its mask stripped off. Let it stand forth in its true form, ugly and hideous, without a single vestige of virtue. The hour has arrived for us to put our stamp of disapproval upon liquor, and thus drive it from its last lines of defense. I earnestly urge that this Society go on record as opposing the sale of liquor even on prescription. We as a profession are encamped in Gilgal, and it is not enough that we disown any Achan who may be in our midst—we must go further and render such an one impossible—if we hope to capture Ai. If we are to have prohibition, then in the name of truth and man, let it prohibit.

Board of Health.—Perhaps the most efficient and the most serviceable work being done today in North Carolina is that by the Board of Health. Secretary Rankin and his officers are unusually capable (no State has a better health man than Dr. Rankin), and their work speaks for itself and speaks more impressively than can I. During this session full reports will be given by this Board, and I will not detain you by urging the necessity for improved health conditions in the State, or by reciting that which has been or is being done. I content myself by urging the doctors individually and collectively to give hearty and cordial support to our health officers.

I further urge that those interested (and all should be) so far as possible attend the annual meeting of the State Society of Public Health Officers. This organization is doing a valuable service and with proper coöperation on the part of the doctors, is capable of being of very great assistance in distributing sanitary propaganda.

I am thoroughly convinced that the practical solution of many of our health problems is the full-time county health officer. I feel sure that this subject has not received the consideration from the profession which its importance demands. There is not a county in North Carolina which, either by itself or in conjunction with another, cannot have a full-time health officer. The official endorsement and recognition of the whole-time health officer idea by this Society would very materially aid the State Board of Health and its officers in molding public sentiment favorable to this idea. I hope this Society as an organization will take some decided advanced step in this matter.

Duty to the Profession.—The second great duty of the doctor is to his profession. Doctors are frequently expected to be more than human, but really they are not. An incentive is essential to our best work. I am too conscious of my own weakness to criticise my colleagues, and I love my coworkers too well to scold them, and I mean to do neither when I say that many, very many, doctors do not take their profession seriously. It is too often the case that we discontinue studying to a large extent after we receive our license. If each of us knew that every

two or three years we would have to face an examination on the results of which our continuance in the practice depended, we would study harder and give more attention to our work, all of which would redound greatly to our good and the good of the people. I unhesitatingly advocate the reëxamination of physcians at least every five years. This may be a step too advanced for our day. I think not. I am of the opinion that if the Board of Examiners were to offer to reëxamine physicians and if the second and successive licenses be made a badge of special honor, sooner or later public opinion would compel most physicians to take these examinations even without the enactment of legal requirements. I am sure that the idea is feasible, and that a plan can be developed which would be practical and beneficial.

In this connection, I will say that for reasons too numerous to mention now, I also favor special examination, in addition to the general examination now required, for those who engage in special work. Not every man who claims to be a gynecologist is one, not every man who claims to be a specialist in any other line of medicine is really capable of doing special work. Special license would not only protect the general practitioner, but, and vastly more so, the public as well. To simply say it can not or should not be done because other states have not done so does not appeal to mé in the least. It is no idle boast to say that North Carolina's history, medical and otherwise, bears out the statement that we do not have to follow. We can teach and lead.

I am sure that practical plans can be worked out by this Society and put in effective operation without special legislation for the examination of those who desire to practice a specialty, which examination should be an additional examination required of them after they have been granted a license to practice medicine, as now given. I advise the appointment of a committee to study these two suggestions and report at our next annual session.

Relation to Medical Organization.—In no way can the individual physician do more to maintain the honor and dignity of the profession, advance its interest and, in so doing, better serve humanity while, at the same time and what is of prime importance, making himself a better doctor than by actively identifying himself with the county, district and State societies.

"For this is the law of the jungle,
As old and as true as the sky,
And the wolf that will keep it must prosper,
And the wolf that will break it must die.

"As the creeper that girdles the tree trunk,
The law runneth forward and back,
For the strength of the pack is the wolf,
And the strength of the wolf is the pack."

Simply joining is not sufficient. One should go further than this. One should attend the sessions and take an active part in the meetings.

In the medical society, and there alone, can the doctor keep step with modern progress and, at the same time, maintain his distinctive character. In this way and in this way only can we in this age of corporative ideas uphold our individuality. The larger rivers are impressive, but the smaller ones are lost in the large stream. To me the stars are more majestic and more to be admired, for while the heavens are aglow, each star stands out clearly to itself and is not lost in the whole. In a well-conducted medical society we all shine, and while the whole is blest, each retains his personality. I have often noticed with only a few exceptions that the most aggressive and enthusiastic doctors are the ones who are actively identified with some reputable medical society.

Some time since, in a world-famous cemetery, I stood by a lovely sepulchre. It was elegantly planned. Its whitened walls were beautifully carved. Its interior contained only dried bones. Near by was a factory. Its exterior was ugly, dust covered, dingy and altogether unsightly. Its interior was athrong with workers and humming machinery, turning out products of benefit to mankind. Which is the most serviceable—the lovely tomb filled with the mummy, or the ugly factory and its machinery? The answer is obvious. If we advance professionally, we must have an organization of which we can feel proud, not so much for the external appearance as for the number and character of workers within, and the thoroughness of their work. Catch the lesson, gentlemen.

Let us not become impatient if a county society becomes inanated or perchance is from its birth but a weakling. A society with but a name is far better than no society at all. Such an one at least has a chance to become a live organization. We cannot in reason expect every county organization to be an ideal one, neither can we in reason hope for the State society to be ideal and all-satisfying. Until we have done our best to aid our societies, we should not "knock" them. Anybody can tear down; anybody can criticise. It takes a constructor to build. If our organizations are not active, or are not just what we would have them to be, the sensible thing to do is to become actively interested in them and make them better. We cannot advance by destroying them. To tear them down is of that species of radicalism which would burn the house to be rid of a spoonful of dust under the sofa. To leave them alone and not try to improve them if they are not serviceable is of the Vauter Van Twiller conservative deliberateness which cogitates until the disputants are dead and then decides with much ado that, since the books containing the accounts are alike and weigh the same, therefore the

accounts are balanced. In a word, we must catch the spirit of the hour so happily expressed in the phrase, "Federate and fight." Gentlemen, I appeal to you, stand by your organization as the patriot his flag, or the martyr the cross.

Duty to Confreres.—The third great duty of a doctor is the obligation which he owes his fellow practitioner. More frequently than may be thought, the manner in which a physician meets his responsibilities to his fellow practitioner is an index to his professional ability and character. As we become more efficient—more learned—we have grown broader. This is an omen of better things yet to be. We have learned that to be intolerant is tyrannical; to be considerate is democratic—Godlike. I congratulate the profession of North Carolina because of the catholic spirit which pervades it. I am persuaded that the average doctor desires to be amicable. The problem with many of us is "How?" We are solving it in a way most satisfactory. We should be so busy with our work and so wrapped up in our profession that we haven't the chance or desire to quarrel. The doctor with a large patronage who is earnestly striving every hour of the day to become more and more efficient has but little time to engage in personalities, or to become active in fraternal strife. There is no truer saying than "The idle hand is the Devil's workshop"; it is equally true that an idle brain is also. This is an era of good feeling in our profession. I am more delighted at the fraternal spirit which is manifest in our fraternity than I am in its increased efficiency, as pleasing as is that.

The time has passed for medical controversy. Believe me, please, the world is not interested in what you think of your fellow practitioner, or in what he thinks of you. In the common parlance of the hour, the twentieth century question is, "Can you deliver the goods?" The public now asks, "Have you ability and character? Can you do the work and do it now?" On an occasion two ministers became engaged in a heated argument on respective church doctrines, and finally agreed that they would submit their arguments to a certain farmer for his decision. After hearing them, he said, "Gentlemen, my brother and I have taken corn to the old mill over yonder for 40 years. Sometimes we go by the road which leads through the valley; sometimes we journey by way of the hills. During all this time, the miller has never asked us, "Which route did you take?" He has always said, "Is your corn sound?" Believe me, please, your clientele will scarcely ask you what you think of the ability of your competitor, nor will he inquire what your competitor thinks of you. The sole question with him is "Can you restore me to health and do it now?" In his mind he queries, "Is your corn sound?"

Of all things most strange, one of the strangest to me is that doctors

should become estranged, members as they are of such an intellectual profession, with such high ideals and aspirations. When tempted to strike a colleague, "Stop, Look, Listen, Think!" What gain you if you destroy his professional character? It does not enrich you and leaves him poor indeed. In one of his poetic stories, Byron tells of one who would destroy his neighbor. He digged a ditch, filled it with spikes and blinded it—a veritable death trap. Journeying that way a time after, he missed his path and fell into the trap which he had set for another. Hungry, athirsty, dying, he cried,

> "The thorns which I have reaped are of the tree
> I planted—they have torn me and I bleed."

Gentlemen, catch the lesson, please.

Jealousy—fraternal strife—dispossesses reason and destroys judgment. It is a sure and certain cause of ultimate destruction. A time ago I looked upon one of the world's master paintings. It was the picture of the partition of Poland. In the center lay the fallen patriot, with death stamped on his face. Bending over him with broken sword and a look bespeaking agony was the Goddess of Liberty. Near by lay the burning firebrands, there the broken walls. In the background could be seen the smoke of a conflagration. Ranging around with talons ready to strike were three vultures, representing Russia, Austria, and Prussia. The picture impressed me because I have seen it exemplified in life. I have noted the fall of a colleague and seen about him vultures, harpies, cormorants, representing envy, hatred and greed. They overthrew him. Take care, gentlemen, be not a man-vulture who, Mephistopheles-like, drags his victim to the infernal regions; but rather be a Michael and unfold before your colleague, and especially so if he be about to fall, the panorama of professional success, showing in the rift in the clouds the sweet face of his professional redeemer. Grecian mythology tells us that the early Greeks purchased their goods not from Neptune who offered wealth and power, but from Athene who offered culture and virtue. I am happy in the thought that as a profession our forefathers chose to buy of Athene. They gave us culture and virtue. Let us transmit them unsullied to our successors. Remember that only by character and efficiency can we succeed.

The doctors of North Carolina by a great and glorious history are irrevocably committed to an enlarged professional vision. We must march on, or we lose our crown and kingdom. The Jews are a great people because they looked forward with unfaltering trust to the coming golden age. Face forward, please, and grow greater as have grown your forefathers before you. Our heroic past challenges us to battle. The

present, glowing with opportunity, is filled with deeds to be accomplished. A bright future beckons us on.

The story of North Carolina's development reads like an Arabian romance. We can scarcely realize what is being done in our State. Within ten years we have seen the products of our farms doubled. In a few years, our manufacturing products increased in value nearly 100 per cent, and our national banks were doubled in the recent ten years, and their resources trebled. Our public school fund in the last decade has increased from $950,000 to $2,750,000. I am happy, most happy, when reviewing professional conditions in our State, that I can say in all truthfulness that the medical profession has kept abreast with any other profession or vocation. A distinguished citizen recently said to me: "As great as have been the developments along other lines, the greatest of all has been that of North Carolina doctors." All over the State there are specialists and general practitioners who are the equal of those in the distant cities. I am persuaded that there is not a body of medical men anywhere the superior of North Carolina's profession. We haven't, it is true, a meteoric Mayo in our midst; on the other hand, we are not chagrined by one who inquires for "the cow that gives the buttermilk."

I congratulate the people of North Carolina on their doctors, and I point with pride to the glorious achievements of our medical men. Long after our marble erected to heroes of war has crumbled into dust, long after the voice of our orators has been stilled in death, will the beneficent influence of our medical men be felt for good. We have no excuse to offer or apologies to make for our surgeons, internists, or specialists. They need no encomium. Their work bespeaks the highest type of character and efficiency, and points the way to better things yet to come. This is a good hour with North Carolina's doctors. We stand with faces to the morning sun, aglow with anticipations of the day, with hearts athrob at the prospects of the early realization of highborn purposes. In truth we can sing the old song of triumph:

> "Daughter of Zion, awake from thy sadness,
> Awake, for thy foes shall oppress thee no more.
> Bright o'er thy hills dawns the day star of gladness,
> Arise, for the night of thy sorrow is o'er."

Dr. A. A. Kent: It has rarely been my pleasure to hear so concise yet so comprehensive a review of the real, vital, substantial work of the medical profession of North Carolina as we have just listened to in our President's address. It has rarely ever been my pleasure to hear so progressive an address from the President of our Society. It has rarely been my pleasure to hear an address so replete with valuable

suggestions as that of our President, and I wish that the good work suggested may bear fruit and be profitable not only to the medical profession of North Carolina, but to the whole people of the State. In order that it may not fall flat, or fail to bear fruit, as is sometimes the case with these valuable addresses coming from the presidents of our Society, I move that a committee be appointed to consider the President's address and make recommendations therefrom to this body for adoption. I would suggest, as a committee, Dr. J. L. Nicholson, Dr. W. S. Rankin, and Dr. J. T. J. Battle.

The motion to appoint a committee to consider and report on the President's address was amended by making Dr. Kent chairman, and was carried as thus amended.

On motion of Dr. J. T. Burrus, of High Point, the privileges of the floor were extended to Dr. William Seaman Bainbridge, of New York; Dr. Stuart McGuire, of Richmond, and Dr. R. L. Payne, Jr., of Norfolk.

Scientific Papers and Discussions

A PHYSIOLOGICAL AND PATHOLOGICAL CONSIDERATION OF PAIN WITH A CLINICAL APPLICATION.

J. W. Halford, M.D., Lillington, N. C.

Inability to measure pain and the lack of a satisfactory classification of the same frequently finds the diagnostician stranded on the bleak rock of doubt, and renders it almost impossible at times to distinguish between the imposter and the honest sufferer. It may not prove unprofitable, therefore, to open a discussion of a symptom which is often the first danger-signal and directs more people to seek medical aid than all other symptoms combined.

William James says, "The physiology of pain is still an enigma," but this statement has been very much modified by recent research.

Various authors have attempted to define pain, their definitions ranging from the ridiculous to the sublime. In 1857 Dunglison defined pain as "a disagreeable sensation which scarcely admits of definition." Sudduth is much more to the point. He says, "pain is a mental state, an element of consciousness, due to the perception of an injury to the body or to the feelings." A comprehensive definition is: pain is a response of living tissue to a stimulus.

In order to experience pain it is necessary that we have three separate organs, and that they be normal, active, and intact. They are the sense-receptive organs, or the terminal filaments of the sensory nerves; the sense-conveying organs, or the axis-cylinders of the sensory ganglion cells; and the sense-perceptive organs, or the sensory cortical cells. For the most part the sensory area of the brain consists of the post-central and parietal convolutions, and the pain center is probably located in the optic thalamus.

The nervous mechanism for the production and propagation of pain may be compared to a system of telegraphic stations, with the intervening wires for the transmission of the message.

A proper stimulus is necessary for the production of pain. The stimuli may be in chemical, mechanical, or toxic changes. We more frequently encounter pain as a result of mechanical changes; trauma, pressure from new growths, inflammatory exudates, confined hemorrhage, etc., coming under this head.

James says the function of the nervous system is to bring each part into harmonious coöperation with every other. In certain pathological

states this harmony is frequently interrupted. We note this loss of harmony in tabes, in which the response to a stimulus may not be recognized and responded to for many seconds, if at all.

As diagnosticians, if we are to profit by the existence of pain, we must have a very clear idea of the anatomy and physiology of the organ in which the pain exists. A knowledge of the character of the pain is also of prime importance. The sufferer will describe his pain as sharp, dull, cutting, tearing, throbbing, lightning, shooting, burning, gnawing, etc. We note the lightning pains in tabes, the gnawing pains in rheumatism, the burning pains in neuritis, the sharp cutting pains in neuralgia, and the dull aching pains in infections and certain constitutional diseases. A very severe localized pain in bony tissue usually spells osteomyelitis, while the dull aching pain in the same tissue points to present or past syphilitic infection.

Especially must we take into consideration the mentality and temperament of the individual. It is claimed that blondes will give greater expression to pain than will brunettes, although both suffering in the same degree. Self-control also acts to modify the expression of pain. The last statements were recently exemplified in my work. Called to Mr. S, a brunette, of low mentality and phlegmatic temperament, who had sustained a severe cut across the left foot. He refused an anesthetic and amused himself singing and whistling while a number of stitches were placed to close the wound. On the following day Mr. A, a man of higher mental development, a blonde, and sanguineous temperament, received a cut almost identical to that of Mr. S. His injury was so painful that a general anesthetic was necessary before an examination could be made.

Upon the correct interpretation of chest pains frequently depends the comfort and mental equanimity of the sufferer. There is a well-fixed opinion among the laity that pain in the thorax is either tuberculosis or heart disease, whatever the latter term may imply. Not a rare cause of chest pains is intercostal neuralgia, which is sometimes of frightful intensity. In intercostal neuralgia we can usually find painful points at the emergence of the nerve trunks, as pointed out by Valleix in 1847. The thoracic nerves, like all spinal nerves, divide into anterior and posterior branches as they pass through the intervertebral foramina of the vertebral column. The anterior is the larger, and as it passes forward as the intercostal nerve receives a communicating ramus from a neighboring sympathetic thoracic ganglion. A Valleix point can usually be found, if carefully sought for, somewhere above the first lumbar vertebra in all cases of intercostal neuralgia. This painful point will correspond to the emergence of the nerve supplying the area in which the pain exists.

Pain should be studied regionally; that is, what conditions cause pain in a given part of the body, the head, arm, chest, back, abdomen, leg, etc. To have a clear idea of the cause of pain presupposes a knowledge of the character and class of pain. For instance, presented with a pain in the arm we should be able to say if the same is due to a local cause, if it is a radiating pain, a reflected or deflected pain, or a referred pain. If a local cause is present then the diagnosis is clear; if it is a radiating pain the lesion is marked out by pain at the seat of the trouble and is continuous to the point of maximum intensity. The source of referred or deflected and referred pain is more difficult to determine, for the causal factor may be far removed from the site at which the pain is registered. A good example of radiating pain is seen in hip joint disease, in which the pain radiates to the knee, and is due to a suffusion or infiltration of the obturator nerve, a branch of which is supplied to the knee. As a rule, however, joint pains do not radiate, exceptions being the pains in the thigh and knee in disease of the hip joint and the pains in the calf of the leg and ankle in flat-foot. Pain in the scapular region is often the result of disease of the shoulder joint. The lesion causing radiating pain is generally easily traced, as the pain radiates directly from the seat of disease. We note this in pressure upon a nerve trunk by displaced organs or new growths. Radiating pains are continuous, and are only temporarily modified by opiates, while the effect of the coal tar preparations is of greater duration.

Referred pain is one in which the irritation occurs along the course of the nerve trunk, the pain being registered at the point of peripheral distribution of the nerve, or the seat of irritation may be in the spinal cord. A good example of referred pain is seen in ureteral calculi and cystitis, the pain being registered in the penis. The second, third, and fourth sacral nerves supply the bladder, rectum, and penis, the latter through the pubic branch.

The reflected or deflected pain is very important, as it is this class of pain we encounter and must interpret in diseases of the internal viscera, which are, generally, free from sensation of pain. It is supposed that the stimulus is carried to the sensory ganglion, or to the cord, to be transferred from the sensory filament of the neuron primarily affected to those of a secondary neuron. Head's law is applicable to this class of pain; that is, "that where a painful stimulus is applied to a part of low sensibility, in close central connection with a part of much greater sensibility, the pain produced is felt in the part of higher sensibility, rather than in that of lower sensibility to which the stimulus is actually applied."

DISCUSSION.

Dr. K. G. Averitt: I am not competent to discuss such a paper as Dr. Halford's, but I do want to thank him for this very practical paper, because it meets the need of the general practitioner and deals with the symptoms that suffering humanity demands relief from. It is certainly one of the most practical papers I have ever listened to, and I wish to thank him for it.

ALBUMIN IN THE SPUTUM IN TUBERCULOSIS—ITS VALUE IN DIAGNOSIS AND PROGNOSIS.

Chas. Hartwell Cocke, B.A., M.D., Asheville, N. C.

Doubtless we shall always place our chief dependence upon physical examination for the recognition of pulmonary tuberculosis; however, there are times when even the keenest examiner would like to have corroboration of the suspicions which have been aroused by his findings on physical examination. Of the numerous tests applied to such suspects, in the hope or expectation of confirmation of the diagnosis of tuberculosis, such as the various tuberculin reactions (the subcutaneous, the cutaneous of Von Pirquet, the percutaneous of Moro, and others, the intradermal of Mantoux, and the ophthalmic of Calmette); the sero-agglutination of Arloing and Courment; the precipitin test of Bonomé and Vincent and Combes; Wright's opsonic index; anaphylaxis; the cobra poison reaction; and, finally, the fixation test, all leave something wanting. Some, or rather most, of these require too elaborate laboratory facilities and too skilled workers to be at the command of the general practitioner, and others are of such delicacy as to give positive results in febrile conditions other than tuberculosis; and all of them are open to the criticism that they fail to show whether the patient who reacts is suffering from active, latent or healed tuberculosis. In an effort to find some simple means by which any physician can corroborate clinical suspicions or evidence of pulmonary tuberculosis the albumin reaction in the sputum has of late come into vogue with the hope of furnishing conclusive evidence of active tuberculosis, or by a negative finding excluding the possibility of tuberculosis. It was with the hope of determining for my own future guidance and dependence the exact value of this addition to our diagnostic and prognostic methods that I have undertaken the examination of the sputum in a certain number of cases with a survey of the available literature, the results of which I now present.

The first mention of albumin in the sputum was made by Biemer[1] in 1855. The statement attracted no particular attention, though Wan-

ner, in 1903, stated that all sputa contained albumin, liberated through decomposition. However, the attention of the profession was not focused upon this matter until the report of Roger and Levy Valensi,[2] in 1909, who claimed that albumin was found almost constantly in the sputum in tuberculosis but was not present in chronic bronchitis—maintaining further that two negative examinations of sputa for albumin excluded tuberculosis.

Naturally such statements, together with the simplicity of the test which puts it within the hands of us all, at once elicited the interest of numerous observers who commenced examinations of their own in the effort to corroborate or disprove these views. At present, however, though quite a few observers have presented the results of their studies on this subject, there is a striking lack of unanimity of interpretation of the results, particularly in so far as the test may be considered an addition to our diagnostic methods for the early recognition of tuberculosis.

The sputum for examination should be carefully collected and as little mixed with saliva as possible. Saliva contains variable amounts of protein which may react to the test for albumin—hence the sputum should be as nearly saliva-free as possible, being gotten from below the glottis. Blood in any amount and particles of food should be excluded, as they would impair the accuracy of the observations. In my own tests the sputum has been collected in an open-mouthed bottle, mixed with an equal amount of tap water (though some prefer distilled water), mucin precipitated with a few drops of acetic acid, and the whole vigorously shaken and then allowed to stand. It is then filtered through a wet filter paper and the filtrate examined by any of the ordinary tests for albumin—heat, 10 per cent potassium ferrocyanide, etc.

The question of the diagnostic and prognostic value of the reaction has divided observers into two or more classes, according to the results of their observations; opinions ranging from unqualified acceptance of the test as proof or disproof of tuberculosis to disbelief in its value at all as a diagnostic means in tuberculosis. Brown and Ross[3] of the Adirondack Cottage Sanatorium, conclude from an examination of the sputa of 116 cases in various stages of the disease that all patients with bacilli of tuberculosis in the sputum give a positive albumin reaction; that the degree of the reaction is proportional to the stage of the disease; that the reaction may occur only during an exacerbation of the trouble; and that a positive reaction by itself is of little diagnostic value, and in no way parallels the tuberculin tests for the determination of tuberculosis. They found that one examination was very inconclusive and on several occasions found a positive reaction after several negative findings. The

repeated negative findings in cases of acute miliary tuberculosis probably mean that there is no active pulmonary tuberculosis.

Biernachi[4] says that a positive albumin reaction in the sputum has diagnostic worth only within limitations. An albumin content of more than 2 per cent bespeaks a manifest character for the tuberculosis, a conclusion which, I think, will stand without fear of contradiction. An inflammatory or destructive process of lung tissue being excluded, we can, he thinks, diagnose tuberculosis upon the grounds of a positive albumin sputum reaction.

Schmitz[5], after an examination of the sputa of 100 cases, finds that in most cases of incipient tuberculosis, albumin is found in varying amounts, in even sparse sputum, without the presence of bacilli, though in undoubted cases of tuberculosis (*e. g.,* fibrosing and proliferative forms) no albumin may be found in the sputum. The albumin reaction, he concludes, is not reliable for the early diagnosis but bears a direct relation to the degree of the illness, being greater with the progress of the disease, and hence has perhaps a value in prognosis. It bears no relation to albuminuria. However, it is so simple and easy that it is a welcome addition to our diagnostic procedures.

Eiler Hempel-Jorgensen[6] after a series of tests (in tuberculous as well as other cases) found albumin in the sputum in 10 cases of bronchitis with emphysema and asthma, in varying amounts from a trace to 1.8 per cent to 3 per cent in another case of bronchial asthma with bronchitis and emphysema, followed for several years without seeing any tuberculous development, and in pulmonary gangrene and croupous pneumonia, and thinks that the amount of albumin found in the sputum depends upon which part of the sputum one uses and on the mechanical handling of it, since he found that there was a definite increase up to a certain time point, depending upon the amount of sputum which the patient had. He concludes therefore that the reaction as a diagnostic measure in the first stage of tuberculosis is not to be depended on.

Gelderblom[7] in an examination of 75 cases, always found that a positive albumin content of the sputum meant a fresh process in the lungs, and concluded that the rise and fall of albumin in the sputum was an index to the progress of the disease. The presence of serum-albumin in the sputum seemed to confirm Aufrecht's theory of the blood-borne origin of tuberculosis. He raises the interesting question, would the systematic use of the albuminimeter predict a hemorrhage?

Schneider[8] says that Eiselt, Goodman, Fishberg and Fellerbaum, Ljubarsky, St. Acs—Nagy, and Luczinin claim that the albumin reaction in the sputum has no diagnostic significance, whereas Busnikara, Levy, Pershaw, Brunner and Pindberg claim that it is a great aid to

diagnosis. He examined the sputa of 90 cases in his series. Tuberculosis was positively diagnosed in 74 cases, 64 of which gave a positive albumin reaction in the sputum. There were 14 non-tuberculous cases of which 8 gave a positive albumin reaction, and two cases, which were probably tuberculous, also had positive reactions. He divided his sputa into mucoid, muco-purulent, and purulent and says that all pussy sputum contains albumin, the amount depending upon the pus content. He concludes that the reaction is not specific for tuberculosis, being found in 8 cases out of 14 known definitely not to be tuberculosis, being found in negative in more than 15 per cent of cases known to be tuberculosis.

The analyses thus far reported by me have been most discouraging, but the work of Treadgold and Ridge[9] in a measure contradicts the adverse reports above given. They report the results of their examinations of the sputa of 2,164 cases, the largest number yet reported by any single authors. Of the first 2,000 cases, 615 showed bacilli in their sputum, and in the entire series albumin was positive in 96 per cent. In the nontuberculous cases examined albumin was found present in 32 per cent and negative in 68 per cent. In the last 164 cases reported by them separately, by reason of the greater carefulness with which the observations were made, albumin was found to be positive in 98.9 per cent of definite tuberculosis and negative in only 1.1 per cent. Neither bacilli nor albumin were found in 25 cases of bronchitis, 2 of bronchiectasis, 1 of laryngitis, and in 4 cases clinically tuberculosis but not active. From these observations they conclude that all active tuberculosis patients show albumin in the sputum—that the positive albumin finding in doubtful early tuberculosis supports the diagnosis—that three successive negative albumin findings with no bacilli in the sputum are strong evidence against tuberculosis, and that the test has considerable value in chronic tuberculosis and emphysema as evidence of activity when found to be positive. They have further made cytological examinations of these later specimens and invariably found when the albumin reaction was positive there was a relative increase in the number of alveolar cells, which confirms the belief of all observers that the presence of albumin in the sputum is always associated with an alveolitis.

Ritter[10] found the reaction positive in 100 per cent of cases with bacilli and in 78 cases out of 108 suspects. Though all bacillary cases gave a positive albumin reaction, the amount of the albumin was not proportionate to the number of bacilli found, just as the number of bacilli found is not always a safe index as to the severity or extent of the lesion. Ritter's enthusiastic support of the test as a diagnostic measure is shown by the sub-title of his article, which reads "its great

value as a reliable and positive diagnostic laboratory method for differentiating pulmonary tuberculosis from other pulmonary diseases."

My own cases have numbered only twenty and are too meagre to reach conclusions from, hence this survey of the literature on the subject. They were for the most part frankly tuberculous cases and the results were not significant. I found that wherever there was an exudative process in the lungs albumin was found, the amount bearing apparently some ratio to the degree of activity, though no quantitative analyses were done, and hence I can not speak definitely on that point. In one suspicious case, a sputum which showed no bacilli gave a distinct albumin reaction, the diagnosis of tuberculosis never being confirmed, though there is every indication that the patient has had a massive fibrosing pleurisy which at the present gives no evidence of activity. Just why this patient should have a positive albumin reaction in his sputum when there is no discernible evidence of alveolar trouble I am not prepared to say.

While no attempt has been made in the cases reported thus far to separate the forms of protein, it may be stated that an excess of globulin is favorable while an excess of serum-albumin is usually associated with fever, emaciation, night sweats and an advancing process (Smolizanski). I have been able to collect from the literature the results of the analyses of 3,951 cases in all stages (not including my own) in which there was a positive albumin reaction in the sputum in 3,778 or in 95.6 per cent. These cases were all definitely known at the time or later proven to be tuberculosis, so that the conclusion is inevitably forced upon us that the large majority of all cases of tuberculosis show a positive albumin reaction in the sputum. It is of course known that albumin is found in the sputum of all pneumonia, caseous broncho-pneumonias and cardio-renal diseases quite frequently, but difficulty in differential diagnosis from tuberculosis does not usually persist for any length of time.

From my own very limited experience with the test as well a review of the literature on the subject, I think we may conclude:

1. All cases of pulmonary tuberculosis showing bacilli give a positive albumin reaction in the sputum.

2. Frequently albumin will be found in the sputum in incipient tuberculosis before bacilli are present, but its presence is variable and it can not be relied upon as a definite means of diagnosis in incipient cases.

3. The amount of the albumin present in the sputum in tuberculosis depends upon the extent of the exudative or destructive process in the lungs, is always associated with an alveolitis and may be an index of the activity of the process, the heavier the albumin content, the more activity present.

4. Certain (fibrosing or proliferating) forms of definite tuberculosis fail to show an albumin reaction in the sputum. Cases "cured" for two years or more fail to show albumin in the sputum.

5. Where physical signs and the tuberculin reaction fail to show activity, the presence of albumin in the sputum may do so.

6. As a diagnostic means, its value is limited and relative, and the result of a single examination misleading. It perhaps has greater value prognostically as above shown.

7. The test deserves wider use till its exact value has been determined.

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CROTALIN IN EPILEPSY.

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On account of the wide publicity given through the lay press to the supposedly wonderful results to be obtained from the use of Crotalin in the treatment of epilepsy, we feel that we owe it to the profession in North Carolina to present to you, and through you to them, the results obtained from this treatment at the Epileptic Colony at the State Hospital at Dix Hill.

First, we wish to state that this treatment has been given under and by the direct advice of Dr. Thos. J. Mays, one of its chief advocates, and to say further that his instructions have been faithfully carried out.

The advocates state that the principle upon which this treatment depends is the fact that Crotalin decreases the coagulability of the blood, and they claim that the coagulability is increased in epilepsy. We wished to confirm or refute this and very readily did so by making use of a Bogg's Coagulometer, which was first carefully tested out on

normal blood at a temperature of 60° to 65° F., the temperature at which the abnormal blood was tested. The mean coagulation time for this particular instrument was 6 6-17 minutes. The mean coagulation time for the blood of nine epileptics who had received no Crotalin was 12 7-9 minutes. Mean coagulation time for the blood of eleven epileptics who had received about forty doses of the remedy was 9 3-11 minutes, while the mean coagulation time of the blood of thirteen epileptics who had been given eighty or more doses was 7 4-13 minutes. These findings would indicate that the exact opposite to the claims of the advocates is true, and this is further in accord with the well known serological principle that the injection of any foreign substance into the blood causes the formation of anti-bodies.

That this condition of the blood is exceedingly transitory seems probable, as in three cases who had taken no Crotalin in three weeks (though they had previously received over one hundred doses) the mean coagulation time was 14 1-3 minutes.

In a more recent paper, Dr. Mays states that he uses Crotalin on account of its pharmacological effect, saying that its action is very similar to that of the cyanides. Let us hope that he is nearer right in this than in his former contention. We are afraid, however, that even this is not entirely true, as practically all of the patients claim that they get decided stimulation from the therapeutic dose of this drug, and the cyanides have never been accused of any such action. In poisonous doses it does cause convulsions—whether for the same reason that the cyanides do remains to be proven. He tells us that the homeopaths have been using snake-venom per orem for many years for epilepsy and by inference we are led to suppose that he has been converted to "The hair of the dog is good for the bite" theory. In this dissertation he further attempts to explain the nature of epilepsy, with the usual result.

Differential blood counts in nineteen cases which had received from forty to one hundred doses showed a tendency to slight eosinophilia with a slight increase in mononuclears, with no apparent effect on the total number of leucocytes nor on the red blood cells, nor did the hemoglobin seem to be affected. In two cases with abscesses the septic factor was present, as would be expected.

The drug is supplied in solution, five minims of which equals 1-100 grain and the directions are to give it hypodermatically twice a week, beginning with four minims and increasing to ten. Later advices were to give no more than five minims. The hygienic and dietetic treatment was the same for these as for other patients.

To determine its effects on the number of convulsions, it was decided

to record accurately every convulsion occurring during the three months preceding its use and to compare the number of these with the number occurring during the first, second and third periods of three months each while the treatment was being given, the doses being different in each of these periods, and further to compare this number with the number occurring during the three months after the treatment was stopped altogether.

The treatment was begun the last week in March, 1913, and forty-nine patients were treated. During January, February, and March, there were 1,275 convulsions: April, May, and June, the first period of treatment, when ten minims were given twice weekly, there were 1,640 convulsions: July, August, and September, the second period of treatment, when ten minims once weekly were given, there were 1,547 convulsions; October, November, and December, the third period of treatment, when five minims once weekly were used, there were 1,493 convulsions. The treatment was discontinued some time in February, 1914, and sterile water used in place of the venom so as to retain any psychological effect there might be, and the number of convulsions during March, April, and May was found to be 1,361. This would indicate that not only does the medicine not decrease the number of convulsions but actually increases them and in direct proportion to the amount given.

As to the effect on the mental condition of the patient, there has been no more improvement in those taking Crotalin than in those taking the usual treatment.

It is only fair to state that a large majority of the patients brought to the Colony for treatment are in bad shape both mentally and physically, and that many of these improve markedly in these respects after they have had the usual treatment here, while quite a few have fewer convulsions, owing to the regular life, careful hygienic and dietetic management, together with freedom from worry and irritation from the outside. This effect is obtained in spite of the fact that they get practically no bromides when compared with the amount they receive before admission.

As a result of our observation, it would appear therefore:

First. That the blood of epileptics is less coagulable than that of normal individuals and that the coagulability is transiently increased by the use of Crotalin.

Second. That the number of convulsions is increased by its use and in direct proportion to the amount used.

Third. That its use seems to have no effect on the mental condition of the patient. All of which is absolutely contrary to the claims of the ad-

vocates of the treatment. Its use does, however, to a certain extent, satisfy the abnormal craving for medicine which all epilepties have.

Three Months Period Before Treatment			First Three Months Period of Treatment			Second Three Months Period of Treatment			Third Three Months Period of Treatment			Three Months Treatment Discontinued		
No Crotalin			10M Twice Wk.			10M Once Wk.			5M Once Wk.					
Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mar.	Apr	May
215	241	280	277	333	231	263	209	244	253	250	275	157	274	257
135	190	214	267	286	246	282	289	260	235	233	247	201	250	222
350	431	494	544	619	477	545	498	504	488	483	522	358	524	479
		1275			1640			1547			1493			1361

THE ROLE OF THE GENERAL PRACTITIONER IN THE TUBERCULOSIS PROBLEM OF NORTH CAROLINA.

P. P. McCain, M.D., Assistant Superintendent State Sanatorium for the Treatment of Tuberculosis, Montrose, N. C.

In North Carolina there are approximately 20,000 cases of tuberculosis, and in our State alone there is a yearly death rate of 6,000 from this one disease. These truths, when viewed in the light of the fact that tuberculosis is both preventable, and, in the early stages, curable, should be a sufficient call to every physician in our State to throw himself unreservedly into the fight against this destroyer, in the prime of their lives, of one-eighth of our population.

The problem of stamping it out seems at first sight so gigantic as to stagger the attempt; but when we see that in many sections, both of our own and of other countries, the death rate from tuberculosis has been reduced within the past ten to fifteen years from forty to fifty per cent, it not only seems a possibility but a likelihood that in the not far distant future North Carolina will gain an equal or even greater control over this dread disease. The problem has been long neglected throughout our whole Southland, and North Carolina should take her rightful position as leader among her sister states of the South to drive it from our midst.

The success of this campaign will necessitate enthusiasm on the part of every physician in our State, and will depend very largely on the coöperation of the general practitioner. By being ever on the alert to

discover the disease in its incipiency and by educating the public in the methods of prevention and the recognition of the early symptoms, the family physician will become in very deed the benefactor of his community and of his State.

One of the greatest drawbacks to the progress of the work, and one of the first duties of the physician to correct, is phthisiophobia, or the inordinate fear of the tuberculous patient. The public needs to be taught that there is little danger in contracting the disease except from patients who are careless. The hysterical belief that it is as contagious as smallpox needs to be supplanted by an intelligent knowledge of its being infectious and communicable. The public needs to know that there is little or no danger in contracting the disease from the patient who shields his mouth on coughing and who expectorates in a receptacle which is afterwards burned. Recently one of our patients had occasion to go to a nearby town on the train. When the other passengers saw him expectorate in his pocket sputum cup, they all with one accord moved to the other extremity of the car. If he had spat on the floor there would have been no alarm. We need only to contrast the rather common incident of entire households being wiped out by tuberculosis, with the fact that in well conducted sanatoria healthy physicians, nurses and employees do not contract the disease, to realize the crying need of intelligent precaution and the foolishness of inordinate fear.

One of the duties of the physician which is most practical and most far-reaching in its results is to arouse the interest of the social, religious, and civic forces of his town or city in tuberculosis. No one can arouse this interest and awaken their enthusiasm so well as the physician. Through the medium of the public press, by making public addresses, and by appealing to women's clubs, civic authorities, church societies, fraternal orders, and other such organizations, he can educate the public as to the proper methods of prevention, and he can press home the great need of providing for the proper care of those who are already infected. In every county and in every town of any size there should be an anti-tuberculosis league, and it is upon the physician that we must depend for their organization.

One of the main advantages to be derived from an educational campaign is that it teaches the public to recognize the symptoms of the disease in its incipiency; and when one with early tuberculosis realizes that he is not to be ostracized and shunned as a leper, he will apply to the physician for a diagnosis in a stage when he can be cured, and before all members of his family become infected.

The importance of an early diagnosis is so paramount in the eradication of tuberculosis that I wish to make its consideration the burden

of this paper. Since tuberculosis is so prevalent in every locality and among every stratum of society, the attitude of the physician in reference to this death dealing disease should be one of eternal vigilance and suspicion. Formerly there has been too great a disposition on the part of both physician and patient to try to believe the case something else until the unmistakable symptoms of incurable consumption have become sadly evident and until by exposing other members of the family the victim has become a link in an interminable series of cases. With each day's delay the patient's chances of recovery are progressively jeopardized, while by making an early diagnosis the physician not only increases his chances of living by about seventy per cent, but he also decreases the probability of his becoming a source of infection to an even greater extent. This is true both because in the early stage of the disease the patient is much less likely to be a source of infection and because he can be taught before it is too late to take the proper precautions against infecting others.

In this connection it will be instructive to note the results of an investigation by Dr. Lampson, of the University of Minnesota, on the percentage of infections among the other members of the household where there was a patient with tuberculosis. His plan was to give them all the Von Pirquet tuberculin test. He found that in families where there was an open case sixty-seven per cent of the other members of the household showed evidence of tubercular infection; where there was a latent case, twenty-two per cent were infected; and where there was a case with a healed lesion, thirty-three per cent were infected. In families which were given the test as a control, where there were no cases of tuberculosis only two and one-half per cent responded.

The early diagnosis of tuberculosis is not a mysterious art possible of attainment only by the specialist. In most cases it is quite within the sphere of the careful and alert general practitioner and requires as a rule only a careful consideration of the symptoms and a thorough and systematic physical examination. If the physician, after careful study, is uncertain as to the diagnosis, it cannot be emphasized too strongly that it is his duty to advise the patient to consult a specialist.

The symptoms which occur early and which should always excite suspicion are malaise, langour, slight loss of weight and strength, slight afternoon fever, rapid pulse, lowered blood pressure, anorexia, and slight gastric disturbances, such as eructations and a sense of heaviness and fullness after eating. The more severe forms of gastric disturbances, productive cough, dyspnoea, profuse hemoptysis, and night sweats are symptoms which as a rule appear only after the disease has fastened its

grip on its victim and are sufficient evidence without the aid of the physician to convince the sufferer of the diagnosis.

Occasionally the first evidence of tuberculosis, either subjective or objective, is hemoptysis, usually small in amount; and fortunate is the patient in whom this occurs, for he always consults a physician and is not only more easily convinced of the diagnosis, but is also more easily persuaded to take the proper treatment.

The only safe position for the physician to take in case of hemoptysis is to consider it of tubercular origin unless it can be definitely proven to be due to some other cause. It is a sad but not very infrequent occurrence to obtain a history from a far advanced case of tuberculosis of having had a hemorrhage even a year or more previously and of having been told by his physician that it came from his stomach or from the rupture of a vessel in his throat. In such an overwhelming majority of cases is hemopytsis due to tuberculosis that the burden of proof should be on any other origin.

Pleurisy and anal fistula, while they frequently occur during the course of tuberculosis, are also very often the first clinical evidence of a tubercular focus; and, although neither is always tubercular, they are so frequently so that they should arouse the suspicion of the physician and cause him not only to make a thorough search for evidence of tuberculosis elsewhere, but also to warn the patient of the probability of its being tubercular and to acquaint him thoroughly with the symptoms of tuberculosis for which he should constantly be on the lookout.

The importance of an accurate temperature and pulse record in the early diagnosis of tuberculosis can not be too strongly emphasized, and its importance depends largely upon its being taken at least every three or four hours for at least a week. It is out of the question for the busy general practitioner to do this himself, but there is rarely found a home where there is not someone of sufficient intelligence to be capable of being taught how to take and record the temperature and pulse accurately. If taken only once or even twice each day, the characteristic temperature curve—normal or sub-normal in the morning with an afternoon or evening rise—may be entirely missed, since the elevation lasts sometimes only for a few hours. A normal or sub-normal morning temperature with even a slight afternoon or evening rise should arouse the suspicion and stimulate vigilance on the part of the physician, especially if it should become normal after rest in bed and become elevated again after exercise. Such a temperature curve, in combination with a rapid pulse and lowered blood pressure, needs little else to make a positive diagnosis of tuberculosis.

The general practitioner is as a rule too busy to make a thorough and

complete physical examination of every patient whom he sees, but no physician should allow himself to become so busy as not to examine thoroughly the chest of every patient who gives a history of symptoms in the least suggestive of tuberculosis. He is otherwise untrue to his professional obligations. If he is systematic he can be thorough and yet consume only a short time in the examination. Rarely will it require more than one-half to three-quarters of an hour.

It is not within the scope of this paper to discuss the details of the chest examination. This can be found in any good work on tuberculosis or physical diagnosis. The two points in the examination which I do wish to emphasize are the necessity of stripping the chest to the skin and the importance of the expiratory cough.

The *sine qua non* of every chest examination is having the chest stripped to the skin. It is impossible to detect signs of early tuberculosis through any covering whatever. If the physician, without the least hesitation, says it is absolutely essential to have the chest stripped, and if, after providing a chest blanket or sheet, he leaves the room for the patient to undress, even the most modest of ladies will rarely raise any objection. By shifting the blanket or sheet every part of the chest can be examined thoroughly with but little exposure and embarrassment to the patient. So important is this that unless the patient is willing to comply, the physician should refuse to make the examination or to have anything further to do with the case.

In inquiring of the patients who have come under my observation during my sanatorium experience as to the steps taken by their physicians in arriving at a diagnosis, I find that one of the most commonly neglected steps is to have the patient cough. This cough will frequently reveal rales which cannot otherwise be heard, and will thus enable the physician to make a diagnosis before the more evident signs of consolidation or extensive infiltration appear. The main value of the cough depends upon its being elicited at the proper stage in the respiratory cycle. The cough should come at the end of expiration, and the rales are most likely to be heard during or at the end of the deep inspiration following this cough. A point of practical value also is to have the patient inspire through his mouth instead of through his nose both during the stage of coughing and throughout the whole examination.

In early tuberculosis there is usually no expectoration. But if there is any whatsoever, the physician is criminally negligent where the diagnosis is the least doubtful unless he either examines it himself or has it done at some good laboratory; and if negative, repeated examinations should be made. Even if repeated examinations are negative, however, one is not justified in excluding tuberculosis on this score alone.

since frequently in early cases, and even occasionally in the far advanced, no bacilli can be found. These is far too great a danger for both physician and patient to feel secure simply because of a negative sputum examination.

But the physician's duty and responsibility have not ended when he has made a diagnosis and instituted the proper treatment for his patient. If tuberculosis is to be wiped out or even appreciably checked, he must find out how many and to what extent the other members of the family or of those exposed by his patient are infected. If a case of smallpox should come under his care, no physician would think of doing otherwise than of vaccinating everyone in the house. And to no less a degree has a physician discharged his obligation in handling a case of tuberculosis until he has done all within his power to discover and prevent the development or progress of infection in everyone exposed.

A practical and effective procedure is to give the Von Pirquet test to all members of the family, and to subject all who respond to a thorough examination. Of course all who respond will not necessarily have active trouble, but it will enable the physician to discover in their incipiency many cases that are active, and will make it easier for him to impress upon them the fact that they have tuberculosis and that they need to take the treatment. It will also impress upon those who respond but who have no active trouble the necessity of a careful and hygienic mode of life in order to prevent a latent focus from becoming an active one.

Since it has been proven beyond a doubt that early tuberculosis is curable, the physician need no longer hesitate to deal in all candor with his patient. I have yet to see the patient who did not appreciate being told frankly of the diagnosis, but I have seen many who condemn their physician for not having told them of their trouble as soon as he found it out. The passage of the law requiring that every case be reported is one of the greatest advances yet made by our State in handling the tuberculosis problem.

The one point in the treatment of tuberculosis which needs most to be impressed upon the general practitioner is the importance of keeping the patient constantly in bed until all active symptoms have subsided. Every patient with a temperature of 100 at any time during the day should be kept constantly in bed and those with 101 or over should be kept at absolute rest in bed until several days after their temperature has become normal. The value of fresh air and nourishing food has been so widely heralded that it is comparatively easy to get the patient to accept them as essentials to a cure. It will require the utmost earnestness and firmness, however, on the part of the physician to get the

patient to realize the necessity of rest; and it is largely due to the failure to enforce this most important essential that the sanatorium yields so much better results than home treatment.

TUBERCULOSIS: THE COST OF A "CURE."

THOMPSON FRAZER, M.D., ASHEVILLE, N. C.

So many invalids arrive at the health resort with such vague notions physician living in a resort town receives from prospective health-seekers, that I have thought it worth while briefly to consider this most practical aspect of the tuberculosis situation, viz., the actual financial burden which the seeker after climatic advantages will be called upon to shoulder.

So many invalids arrive at the health resort with such vague notions of the expense that will have to be incurred, and with such mistaken ideas as to the wonders which climate can perform and the length of time necessary for the performance of these wonders, that they soon find their resources totally inadequate to meet ordinary demands, and are unable to supply themselves with the necessities and comforts which they enjoyed at home. Before the tuberculous patient takes the contemplated trip, therefore, he should be advised as to the price to be paid, for if proper care and comforts are not forthcoming, the advantages of climate *per se* are overshadowed. It is unfortunate but true that the chances of recovery depend to a great extent on the fatness of one's purse, and whoever said that money could not bring about the blessing of health, had evidently overlooked tuberculosis. For while it may not be accurate to speak of a "cure" in connection with this disease, we all know what can be accomplished in the earlier stages by means of proper treatment, which includes fresh air, rest, suitable food and the like, all of which spell money; while in the latter stages life is prolonged and made tolerable only through measures which necessitate the expenditure of considerable money.

The relationship between tuberculosis and income is, indeed, a close one both as to the incidence of the disease and the recovery therefrom. It may be said as a general rule that the prevalence of the disease varies inversely and the chance of recovery directly with the income. For tuberculosis is a disease of the masses, not of the few. While its heaviest tribute is exacted from the lower classes, the social precipitate, it is not these who seek climatic advantages, but rather those who constitute the great middle class, so-called. The business and the professional man must alike pay toll, but it is the clerk and skilled laborer, whose scant living wage permits only a narrow threshold of hygienic safety, from whom such a large number of health-seekers are recruited.

It is almost unnecessary to add that tuberculosis is a disease which strikes one in the prime of life, before there has been an opportunity for the most provident to set aside the rainy-day portion; it is the young man on a salary who bears the brunt of the attack. And, although engaged in gainful occupations, the man in the thirties, and more especially he in the twenties, is seldom in a position to cope with a long-drawn out disease such as tuberculosis, which not only keeps the wage-earner from his work but necessitates considerable outlay as well. For rest, climate, food and physicians are expensive, and time is money itself. The relationship between income and recovery is therefore a close one, and as the patient practically always comes on borrowed money, the question "What will it cost me?" is the first situation to be met and dealt with.

While one can seldom give an absolutely definite reply to this question, as recovery and improvement depend on so many factors, it may be said that little can be accomplished, in the very lightest case, in less than six months, while one year would be a safer minimum to allow for the greater number of early cases that we see. Improvement is slow, and unless the patient's financial condition is such as to enable him to provide himself, at the resort, with proper care for a sufficiently long period, he might much better have stayed at home where he would have good meals and good quarters at less money.

The cost of a room and board varies greatly in the resort. This most important item in the treatment of tuberculosis is too often relegated to second place, and it should be definitely stated that good food and comfortable quarters are essentials in the management of this disease and that economy here is misdirected. Board of fair quality may be had at prices varying from ten to twelve dollars a week, depending on location, room, and other features. Occasionally it may be had for eight dollars, only exceptionally is it to be had for less. If we rather arbitrarily take ten months or 43 weeks as the length of time necessary to effect a decided improvement, we have at 8, 10, and 12 dollars a week for room and board, a total of 344, 430, and 516 dollars respectively for this period. Incidentals would amount to two dollars a week at least, or about 100 dollars for 43 weeks; and allowing an average of 20 dollars a month for physician's services we would have a grand total of 644, 730 and 816 dollars for the entire period. The first estimate is perhaps too low, and it would be safer to allow 700 dollars (exclusive of carfare) as the minimum amount compatible with the needs of the patient for a period of ten months.

Now what has been said applies to the earlier cases only. If the

disease is farther advanced the duration of treatment and the cost of extras will be correspondingly increased. The physician not familiar with the actual conditions has no conception of the number of tuberculous individuals who, insufficiently provided with this world's goods, come to the health resort hoping in a few weeks' time to recover health which is perhaps beyond recovery even under the most favorable circumstances. Every physician in a climatic resort has such patients whom he treats gratuitously and gladly. Sooner or later, however, these cases become a charge on the town and must either be supported or sent home. Not being able to command the proper facilities and returning home much worse than when they arrived, they have taken the trip and spent their money literally for nothing. Not realizing the need of rest, proper food and accommodations they have staked all on "climate" and have lost. It can, therefore, not be too strongly emphasized that the best climate in the world is useless in this disease unless supported by the essentials above noted. Should the money not be forthcoming to provide these essentials it behooves the patient to remain at home and avail himself of the fresh air, and food which can be had for much less, and to put himself under a competent physician's care, instead of attempting to pursue the cure at a climatic resort under adverse conditions. Before taking a trip he should be made to count the cost, and if his resources do not permit a rather protracted stay at the resort, including the proper facilities for taking the cure, he should be made to understand that without these he will be unable to reap the benefits of "climate."

It is hoped that this brief paper may throw a little light on the actual conditions which prevail, and that by discouraging the tuberculous from seeking climatic advantages unless prepared to meet the increased financial responsibilities, it may prevent much unnecessary hardship and suffering.

DISCUSSION.

Dr. H. D. Stewart, Monroe: This is a subject in which I am interested, as tuberculosis has been in my family for about seventy-five years, and in my practice for sixteen years. I want to say just a word about the relation of the general practitioner. I think the general practitioner should take pains to instruct the patient himself and the family about this disease, so that they will know how to cure the patient. No doctor can cure a patient without the help of the patient himself. You can not do anything with a tuberculosis patient unless you can first get his consent and the consent of the family. You might as well inform him that if he is not prepared to do the best he can, he can not be cured.

Another thing the general practitioner should not do is to keep a patient until he is nearly dead and then send him down to Montrose. It is too late then. Unless he knows that he can cure the patient he had better let the patient go to Montrose first and take his money with him. I have heard a great deal of complaint of physicians all over the State keeping the patient until his money is exhausted and then letting him go to Montrose. By that time he is in the third stage and can not be cured. I think the patient should be sent to the State Sanatorium at once instead of waiting until his pocketbook is empty. We move along without any special knowledge of tuberculosis and undertake to treat the patients without any special knowledge and go right on and on and pay no special attention to them, when those patients might be in the hands of an expert and get well. We let a good many patients die in that way.

Another thing, there is an idea prevalent among the laity that if they get tuberculosis they are gone. We have to get that idea out of their minds. People often conceal tuberculosis because it lays a stigma on the patient. I have had such experience, that people don't want it mentioned, but how can it be hid? It is the role of the general practitioner to talk a little common sense with the laity and reason with them.

Dr. Armfield: As Dr. Stewart just said, we should send our patients to Montrose. We have not solved the problem yet. One thing I positively do know and that is that tuberculosis is as hereditary as any disease on the face of God's earth.

Take for instance the animal creation. Suppose you should try to raise a fast horse; you would take the fastest stock you could get. You would not try to build up a race horse from scrub stock. It is just as reasonable to take a family where there is tuberculosis on both sides and expect to raise healthy children. Preventive medicine outside of sanitary advancement has made little progress. We are no nearer to curing tuberculosis now than we were when I began practicing medicine—thirty-two years ago.

Dr. J. P. Munroe, Charlotte: There are just one or two things I want to say. For many years it has been true that this Society, when the subject of tuberculosis came up, was inclined to pay little attention, because the subject had been discussed so much that it had become somewhat stale, even to those of us who were interested. But today we have heard some exceedingly interesting and valuable papers.

Dr. McCain brought out what is perhaps the most important thing from the standpoint of a general practitioner, the importance of recognizing tuberculosis in its early stages and bringing it under treatment.

I believe Dr. Stewart is right in speaking of the tendency of doctors a few years ago to keep their patients too long. But today I think it is different. It is sometimes very difficult now for patients to find room at the sanatoriums where they can afford to go. I have several patients on my hands now, but Dr. McCain tells me there is no room at the State Sanatorium. I have inquired about the sanatoriums in Asheville, but I find no place where they can afford to go.

I have heard a great many papers read before this Society and have seen a great many people go up and read papers. I don't believe I have ever seen a doctor read a paper before this Society who has done it with the grace and ease and impressiveness with which it was done this afternoon by Dr. Lapham. Not only was it done easily and impressively, but there was meat there, food for thought. This paper is worthy of our most serious thought and consideration, and in behalf of myself and the Society I wish to thank Dr. Lapham for the most excellent paper she has given us.

Dr. P. P. McCain, Sanatorium: There is one thing Dr. Munroe mentioned about our beds all being taken up in the hospital to which I wish to call attention. I wish Dr. McBrayer were here to speak about it. Just at present every bed is taken, but we don't wish you to stop applying for room there. In the near future we hope to get the Legislature to make an appropriation to provide for more patients. We want you to apply, and if possible we shall be more than glad to take your patients. Send them in the early stages, because it is in the early stages that you can hope to do most for tuberculous patients.

Dr. A. W. Calloway, Asheville: I have watched the various cures for tuberculosis for sixteen years and the thing that impresses me most is its incurability. We talk about a cure as though it were something done within limits. As a matter of fact, after the patient has been cured or the disease arrested, the question comes, What will become of him and how long will it be before a relapse? Advanced cases are now being sent over the country seeking a cure. After the so-called cure is established, the patient is usually broken down and is physically unfit.

We are apt to think that a sanatorium is a place where we can send patients for a few months with a cure in view. They may gain in weight and the lesion become closed and we think that ends it. It does not end it at all because so many, sooner or later, will relapse.

Dr. C. V. Reynolds, Asheville: This question is so broad that it would take an hour or two to discuss it, but there are just two points of which I wish to speak. One is this, if it were the universal custom for the family physician to make a complete examination of the well instead

of visiting and making examinations of the sick, we would have less tuberculosis. I believe our organization of whole-time health officer work, going around and visiting the school children and examining them while they are in apparently good health and removing their defects, will in a few years have an effect in decreasing the number of cases of tuberculosis.

Another point I want to speak of is one that Dr. Lapham referred to in regard to tuberculosis in cows, and the inability of eradicating tuberculosis from the herd. I have seen statements published that it is impossible to eradicate tuberculosis from a herd of cows, but I personally believe that that is a commercial idea and that it is possible. I want to state here, being health officer in Asheville, that in the Vanderbilt dairy, where there have been about 400 cows, there has not been a case of tuberculosis in about three years. The cattle are very fine, high-bred animals. Ten or more years ago we found twenty or thirty tubercular cows in that herd, but now the disease has been eradicated. It is a step backward to declare that it is impossible to keep our people from drinking the milk of tuberculous cows.

Dr. Thompson Frazer, Asheville: Dr. Calloway brought out one important point, that is that we can not speak of tuberculosis being cured. Tuberculosis is a chronic disease, characterized by relapses. Of course, when we speak of a cure we are not using the word in its scientific sense.

Dr. J. Allison Hodges, Richmond, Va.: It has been my pleasure on many occasions at different meetings to listen with great pleasure and profit to what Dr. Lapham has said, and her views as expressed this afternoon are very strongly in line with what I have long felt on this subject. I would like to ask that she make plain in her rejoinder what steps she would take and what is advisable in the work already done. While I admire the paper very much, yet it left a pessimistic impression that I am sure she did not mean it to convey, and I wish that she would give us the benefit of her knowledge along this line.

Dr. L. W. Elias, Asheville: It seems to me there must be something wrong, either with the claims of the men Dr. Lapham quotes, or with the men we have been depending upon. In conducting tuberculosis tests with children it is very often that we find a positive reaction. Dr. ————, of Minneapolis, has found that what was formerly considered tuberculosis in babies would be produced by other agencies. With this contradictory evidence, with men saying that a large proportion of tuberculosis found in children and animals is not tuberculosis, and with the statement that others make that the majority of us

do not take tuberculosis, we need a little more light. I would like to say, however, most emphatically, the most important part is prevention and should like to emphasize the importance of fortifying against it in every way by means of educational campaigns for hygienic living.

Dr. Mary E. Lapham, Highlands: This universal gloom is not gloom; it is distress on my part that I can not make people see what I think I see. I dare say everyone in this room believes that tuberculosis can be prevented. I believe I am right in saying that it is the general impression. My position is this: Whether your child is exposed or whether it is not, whether it is sick or whether it is well, whether it is strong or feeble, high or low, rich or poor, it makes no difference, the infection is there. What will you do about it? It is a striking fact that tuberculosis is perpetuated mostly, for the greater part, in well people and well children. The sick child is protected, the well child is not. It is only in well children that tuberculosis can be perpetuated because the others are gradually, year after year, weeded out. Given the infection, given the fact that no amount of resistence can prevent the development, no amount of sanitary living can prevent development, there is but one thing that confers safety—only one thing—that is detection, and that is precisely what we can not get. We wait until the case becomes manifest before we do anything. If I might be permitted to say anything about the role of the general practitioner, I would say that it is always extremely difficult to tell whether tuberculous processes are present in children, and therefore would have him take your children under his care and see that no tuberculous processes developed. To wait for physical signs is folly. Physical signs are too late. Tuberculosis should be detected long before these signs appear. Have an X-ray test; that is the only reliable indication we have before the physical signs appear.

As to cost, if the patient has to live at home and his family has to be supported, it costs very little more for the family to live in one place than another, unless there are certain reasons. I should like to suggest to members of our Association that when a patient is too poor to pay board at the rate of from $8 to $12 a week, they advise the patient to see if he can not live under suitable conditions just as cheaply as he can live at home, and a good tuberculosis specialist will be glad to look after him for nothing.

RECENT CONCLUSIONS REGARDING PARESIS.

Isaac M. Taylor, M.D., Broadoaks Sanatorium, Morganton, N. C.

Paresis, under its many synonyms, has long had a place in medical literature. Haslam describes it and Esquirol, in his treatise on Mental Diseases, gives an account of a typical case under the head of Monomania.

In the nineteenth century, with the general advance in civilization and the great increase in urban population there was a notable increase in prevalence of the disease, and now in the twentieth its importance should make it of interest to every clinician.

With the advanced development of critical medical study, and the more general understanding of post mortem findings, many cases formerly accepted under other classifications were found to be paresis, and its age range has been extended from the period of maturity to childhood on the one hand and advanced age on the other, each decade showing a proportion of cases. These clinical conclusions have been confirmed by autopsies.

Twenty-five years ago paresis was the one mental disease recognized as having a definite clinical course and a typical cerebral pathology.

Very early in the literature on the subject we find that syphilis was either considered as a factor in the production, or was present in many cases as an incident in the lives of those who, as a result of a predisposition, fast living, sexual excesses and business stresses had become victims of the disease.

In 1857, Esmarch and Jessen attributed to syphilis as the cause three cases of paresis, and from that time it had been a subject of controversy, to reach a practical settlement in the past few years through laboratory study and the general acceptance of the Wassermann reaction.

This conclusion has had further confirmation in the finding, by Noguchi and others, of the spirocheta pallidum in the spinal fluid and the brain substance itself.

We may say that the dictum, "no syphilis, no paresis," is universally accepted by students of the subject.

The discovery of the living organism in the brain substance has again brought into prominence the discussion as to where paresis belongs in the syphilitic process, whether it is a late sequel or another evidence of the activity of the causative spirocheta.

The more generally accepted theory is that it is evidence of an active process and that in syphilities furnishing the proper conditions for

development paresis may make its appearance at any period in the disease.

No considerable advance has been made in the study of the symptoms of developed cases as seen by asylum physicians. The earlier descriptions were accurate in every particular, but through the laboratory we are enabled to reach more correct conclusions regarding the border line cases, those seen very early in their development and those simulating other forms of mental trouble. Here the Wassermann reaction with the blood and spinal fluid has been of untold advantage to the investigators.

We can no longer be content with a review of the morbid psychological conditions present with our patient, the evidence of impaired nerve function and of destruction of the higher nerve centers, but we must through laboratory investigation know the reaction of the blood and spinal fluid to the Wassermann test, know the reaction for globulin in the spinal fluid and the cell content of the spinal fluid.

A further step in the study of the spinal fluid is the application of the colloidal gold test, promising in its present development to be a great aid in differentiating the several forms of cerebral syphilis. Introduced by Lange it is under critical study in the laboratories of this country and now widely accepted as a test for syphilis of the central nervous system.

With a positive Wasserman with the blood serum or spinal fluid, an increase in the cell count of the spinal fluid, in addition to some of the classic symptoms of paresis, we may be safe in a diagnosis of paresis, even in the recent cases.

The positive diagnosis of paresis and its differentiation from other forms of syphilis of the central nervous system rests on a correct interpretation of the laboratory findings; it is rarely that a paretic is found who does not give a positive Wassermann with the blood.

Nonne's findings in paresis are:

"Wassermann reaction with the blood positive (100 per cent).

"Phase I Globulin reaction positive (95 to 100 per cent).

"Lymphocytosis (95 per cent).

"Wassermann in spinal fluid.

"Positive in 85 to 90 per cent with original method, and 0.2 cc. fluid.

"Positive in 100 per cent, with larger quantities of the fluid."

However satisfactory to the investigator a definite diagnosis may be, the individual patient gains little unless this leads to some remedy for prevailing conditions that promises to bring a permanent cure, a stay in the progress of the disease or an amelioration of his symptoms.

The brilliant results which followed the use of salvarsan in other

chronic syphilitic troubles led to the hope that a remedy had been found which would control paresis.

The first cases were in every way discouraging, the subjects in advanced stages of paresis were not improved, and in many cases the opposite was the result, with some fatalities. Later with a further improvement of the methods of administration, the injection of salvarsan and neo salvarsan into the spinal canal, and still later the use of salvarsanized serum for the injections, better results were had; and now further progress is being made by a more general use of the laboratory findings as an index of the results following administration of the doses, and the selection of the more recent cases has materially affected the results obtained.

In some cases a stay in the progress of the disease, in some actual remissions have been reported and even in some advanced cases there has been a decided amelioration of symptoms.

In reviewing the results it must be still kept in mind that there remains a doubt whether we are dealing with a paresis or some other form of central syphilis, the differentiation is not yet exact, and we must still not forget that under all methods of treatment frequent remissions are not uncommon.

Not yet can we say that there have been any cures. Until a very long time passes without symptoms we cannot count on a cure, and all the experimentation has been of too recent a date for conclusions.

The treatment of paresis at the present time demands the persistent use of salvarsan, neo salvarsan or salvarsanized serum intravenously and in the spinal canal. It has not been proved that salvarsan does not reach the brain and membranes by the ordinary channels of nutrition, and on the other hand the more direct approach through spinal injections may be blocked by organized inflammatory products.

The use of mercury in connection with the arsenic treatment is called for in some cases, and the general hygienic measures must not be neglected.

In conclusion, the diagnosis of paresis is not complete until there has been a thorough laboratory review of the blood and spinal fluid.

The treatment has not been sufficiently tried until there is a return to nearly normal of the cell content of the spinal fluid, or a marked exacerbation of the symptoms we are seeking to relieve.

DISCUSSION.

Dr. J. Allison Hodges, Richmond, Va.: Dr. Taylor's paper is very interesting, and upon a subject engaging the professional mind at the present time, and I think it is well that he be commended for the very

conservative stand which he has taken regarding the treatment of this class of cases. It is a fact, as you all know, that the medical world at times is afflicted with the fad of taking up every new cure or treatment that appears, and is perhaps rather too excessive in its estimation of the results of such cures. When this method was published just a few years ago, naturally all men interested in this class of cases believed a treatment had been found which would give satisfactory results, but two years ago I made a report on sixteen cases of paresis not improved by this treatment.

What Dr. Taylor brings out is this: First, that we can diagnose properly by the Wassermann and the blood count a certain number of cases of paresis. It is also true that a large percentage even of those cases we have already diagnosed positively can not be cured by these methods. When the method of giving salvarsan through the spinal canal was reported, I believed we were near the final method of treatment. But that treatment has not brought about the satisfactory results we were expecting. So the old question of paresis and its treatment is a problem yet to be solved. In fact there is a great deal to look for and wish for in the development and perfection of this method of treatment. It is nothing but right to say that there are some cases so degenerated that it is utterly unwise to use this method of treatment, because we may have certain foci, especially in the brain cases.

In conclusion I wish to say that I believe the methods of Dr. Taylor's paper are along the right line. But we should remember that there are many of these cases, with degenerated brain tissues, etc., that should not be submitted to any form or method of treatment that is so very strong and active as the method outlined. It is a fact that some cases have been benefited, and it is also a fact that some cases have been benefited that were negative with the Wassermann. It has been my experience with a large number of these unfortunate cases that the addition of mercury has caused more improvement than the simple use of salvarsan by itself.

Dr. J. P. Munroe, Charlotte: I think Dr. Hodges is entirely correct when he says that the combined treatment of salvarsan and mercury offers perhaps the best hope for benefit in these cases. I wish to repeat in substance what he has said about the value of Dr. Taylor's paper, and to commend his concise way of stating his views and his knowledge of the present situation. I do not know any one who has had a better chance for observation and more extended experience than Dr. Taylor, and he has given us the benefit of his experience in an exceedingly plain and satisfactory way.

Dr. E. J. Wood, Wilmington: I do not know from my own first

hand knowledge, but I feel sure that two drinks of whiskey tonight would cause negative Wassermann reaction tomorrow. I have in mind a case where I had a positive diagnosis one day and a negative the next. I know of a case that was found negative at Hopkins four or five times and was found positive in Boston. There seem to be so many things that would make negative reactions possible in a syphilitic process. I know a dose of mercury will do it and I know whiskey will do it. Until we are sure our patient has not been drunk and has had no alcohol at all I think the value of our Wassermann reaction is exceedingly limited.

Dr. I. M. Taylor, Morganton: There is not much for me to say, because my experience and reading is about summarized in the paper I presented, but it is a fact that some of the symptoms are presented by other degenerative changes in the brain. It is not impossible that paresis may be simulated under the circumstances by some of the symptoms of paresis. The eye symptoms may occur in tumors of the brain which may not by other tests be determined as syphilitic. We often have some of the expansive ideas in senile cases, where the degeneration of the brain is through old age. I do not believe we are justified in a diagnosis of paresis unless we have several symptoms.

THE STATE LABORATORY OF HYGIENE AND THE GENERAL PRACTITIONER.

C. A. Shore, M.D., Raleigh, N. C.

It is our belief that the State Laboratory of Hygiene can reach its greatest usefulness by working through and with the medical profession, and the policy of its management has been based on this belief.

Our work has developed along three rather distinct lines: The general laboratory diagnostic work, the Pasteur antirabic treatment, and the distribution of therapeutic sera.

In regard to the first we have not wavered from the point of view that a laboratory can not in any case take the place of clinical diagnosis, but that it is only an aid to such diagnosis, though often invaluable. The chief examinations which are at present practicable in the State Laboratory of Hygiene are examinations of sputum for tubercle bacilli, feces for the eggs of intestinal parasites, swabs from the throat for the bacillus of diphtheria, smears of pus for gonococci, and of blood for malarial parasites, blood for the Widal agglutination test, the brains of animals for rabies infection, and the examination of water.

To speak of the last first, the work of our laboratory is peculiar in

that our State is the only one, so far as I am aware, which requires a regular monthly examination of samples of water from all public supplies, and from all bottled waters. These examinations are a large and important part of our work, and the improvement in many of the waters has been remarkable since regular examinations were instituted. For instance, one of the well known waters from another state at one time contained bacterial pollution in every bottle, due to a careless and filthy method of bottling. A public notification led to a complete overhauling of the bottling plant, and since then we have not found a single instance of pollution in this water. Or take our own much discussed city water. The transformation of the Raleigh plant from inefficiency and inadequacy has seemed unnecessarily slow to most of us, but the point is that the regular examinations have made it possible to keep the public informed, and the city physician has issued a warning whenever the water has lapsed from bacterial purity. At no time has this water been as badly polluted as that from the average open-top bucket well. In spite of the general impression, specific disease germs are rarely isolated from water. The bacillus typhosus does not originate in water, and when it gets into water from some human source it soon dies. Great and sudden epidemics may be caused by infected city supplies, but it is my belief that very little of our endemic typhoid is due to water infection. In comparison with the regular examination of public supplies, the examination of a private well is of little value, and I believe the laboratory should no longer be called on to make these examinations.

I shall not go into details concerning the examinations for tuberculosis, diphtheria, gonorrhea, malaria, intestinal parasites, etc., except to remind you that while a positive finding means that the disease is present, a negative result does not mean the converse.

This laboratory comes in direct relation with the patient only in cases of persons bitten by rabid animals. Since we have undertaken this work we have treated over 1,100 patients, and we have had one death after treatment. This was a boy very badly bitten about the face and head, in whose case treatment was of no avail. At the lowest estimate we have saved $100 to each of the 1,100 patients by treating them in this State, or an aggregate sum of $110,000. The virus we now use is furnished us by the United States Hygienic Laboratory, at Washington, on condition that we do not send it out, and we are therefore compelled to have all patients come to our laboratory. If the Legislature will permit us we hope to make our own virus soon, and hope to be able to send it out to physicians at their homes.

This brings us to the last phase of the laboratory work—the distri-

bution of diphtheria antitoxin and typhoid vaccine. In the fiscal year just closed we have distributed 9,354,000 units of antitoxin, and on this amount the saving to the consumer has been $11,981. Since we began to manufacture typhoid vaccine last fall, we distributed up to June first, without charge, 6,636 complete treatments. I believe the commercial vaccine retails this season at $1.50. Estimated at this price we have saved to the State $9,954. It is not too much to hope that we may establish a population immune to typhoid fever, as is the United States Army. These various figures above are given because they are easily secured and easily understood, not because such a standard is the best one in laboratory work or any other public health measures.

I am forced in this paper to indicate in outline only the ways in which the State Laboratory of Hygiene can serve the general practitioner. In conclusion I may suggest that he can help us and himself by care in the taking and sending of specimens. For instance, specimens of sputum should be secured from the bronchial tubes, that is sputum which has been coughed up—not that which collects in the pharynx. Likewise in getting swabs in suspected diphtheria cases the membrane must be rubbed thoroughly and the specimen should not be taken just after antiseptics have been used. Malaria parasites cannot be found if the patient has been taking quinine, nor unless a good blood smear is sent for examination.

And finally, only the laboratory man himself knows how hard it is to make examinations which he knows or which he suspects to be unnecessary. For example, we are often asked to look for malarial parasites when the patient has been in bed with typhoid fever for three weeks.

We have only thanks for courteous and considerate treatment from the profession in general, and can assure them in return of our sincere desire to serve them.

DISCUSSION.

Dr. J. M. Northington, Boardman: I would like to testify to the very valuable work done by the State Laboratory. In the five years I have been in the State I have used the State Laboratory very extensively for the examination of blood for the Widal reaction. For the first year or two I used it a great deal for the hookworm examination and I have also used it a great deal for diphtheria examinations. I can say that in not a single instance has the ultimate result shown that the laboratory was erroneous. One case of typhoid I treated for three weeks and did not get a positive report from the laboratory until the temperature was normal. Even then it was of some value because it showed the diagnosis was correct and showed that the measures of

prevention, which might have been considered an unnecessary expense to the family, were not unnecessary.

In other cases I had swabs from diphtheria cases and in every one of these cases, no matter how clearly the diagnosis might seem to be established, if I got a negative report I found in every case the laboratory was correct.

Dr. Edward J. Wood, Wilmington: I want to say a word to commend one special branch of this work. In my town during the last three years we have had a great many cases of rabies. During that period I am sure Dr. Shore has examined the heads of at least thirty dogs. The value of that work to our community has been absolutely inestimable. It was my misfortune several years ago to see a death from hydrophobia. The thought that we have in our own State a laboratory that does this work without any pressure being brought to bear and that sends a telegraphic reply within twelve hours after the specimen is sent in is a safeguard that we do not fully appreciate.

THE OCCURRENCE OF YAWS IN THE UNITED STATES.

Edward J. Wood, M.D., Wilmington, N. C.

Yaws is a tropical disease occurring chiefly among people of African blood. It is characterized by an eruption belonging to the classification of infective granuloma. In many respects it resembles syphilis, and like it is due to a spirochete.

Dr. John Hume, of Edinburgh, in 1884 first advanced the theory that the disease described in the thirteenth chapter of Leviticus was yaws. Rat objects to this conclusion for the reason that the disease which so afflicted the Israelites during the migration from Egypt and which they called leprosy did not follow the course of yaws, being much more rapid in its transitions from stage to stage. On the other hand, it should be recalled that the Biblical use of the term leprosy was generic, including a number of diseases separated since that period. Further, an evidence in favor of Hume's theory is the fact that yaws in a dark person does produce the areas of whitening of the skin which the priest used as a sign of the progress of the condition, and, again, yaws is a disease which will run its course, ending in many instances in spontaneous recovery, which cannot be said of leprosy.

Rat contends that yaws was never brought to the attention of Europeans until after the discovery of America, though it had been known for many centuries before this time in Africa. It was also known in many places untouched by the African slave trade.

It will be recalled that an epidemic of syphilis originated in the

armies before Naples in 1493, according to history, and spread widely through Europe. Some have advanced the theory that this was yaws which had been brought to Italy by the Spanish soldiers returning from America, but the error of this conclusion Rat points out in the fact that these soldiers did not reach Italy until 1495. It is thought by many that this outbreak was really syphilis and that it was brought into Europe by the Moors who settled in Spain.

Yaws was thought to be peculiar to Africa, but Rat points out that Raymond Breton, Rocheford, and Labat mention its prevalence among the Caribs and other tribes of Indians, among which were tribes living on the Mississippi River.

Lancereaux said that yaws was to be found in most of the colonies to which negroes are carried, especially in the southern states of America, but Rat discredits so much of the expressions of this author that we would probably be justified in counting this conjecture, for it is a well recognized fact, remarkable as it would seem, that the southern states have been peculiarly free from this disease in spite of the slave traffic.

Probably the first reference to yaws in this country is to be found in that quaint old volume entitled: "The Natural History of North Carolina with an Account of the Trades, Manners, and Customs of the Christian and Indian Inhabitants." Illustrated with copper plates, whereon are curiously engraved the map of the country, several strange beasts, birds, fishes, snakes, insects, trees, and plants, etc. By John Brickell, M.D., Dublin, 1737. While the present-day idea of yaws differs somewhat from this account, still there is much about the following description to indicate that there was no error in the diagnosis:

"The yaws are a disorder not well known in Europe, but very common and familiar here. It is like the lues venera, having most of the symptoms that attend the pox, such as nocturnal pains, botches, foul eruptions, and ulcers in several parts of the body, and is acquired after the same manner as the pox is, viz.: by copulation, etc., but is never attended with a gonorrhœa in the beginning. This distemper was brought hither by the negroes from Guinea, where it is a common distemper among them, and is communicated to several of the Europeans or Christians by their cohabitating with the blacks, by which means it is hereditary in many families in Carolina, and by it some have lost their palates and noses.

"This distemper, though of a venereal kind, is seldom cured by mercurials, as I have often experienced, for I have known some undergo the course of three salivations to no purpose, the virulency still continuing as bad as ever: Wherefore I judge it not amiss to set forth the most effectual method for curing it, which I have often experienced and never without good success (during my residence in those parts) though the distemper was of ever so violent a nature, or long continuance. * * *"

Firth, in Allbutt's System of Medicine (1896), says that the name framboesia was originally given to this disease by Sauvages in 1759, from the French word *framboise,* meaning a raspberry (Gould) because of the resemblance of this fruit to the typical skin lesion of the disease. The name yaws is said to mean strawberry, but there is little doubt that the West Indian term and the French term are synonymous in meaning as well as in the origin in the resemblance to the fruit. It will be noted by a comparison of dates that Brickell's use of the word yaws was twenty years before Sauvages' reference. Brickell was not conscious of using a new term, nor could it have been new. There is every reason to believe that in the West Indies yaws has existed since soon after the Colombian period. Sauvages merely translated the colloquialism into a classical language.

The synonyms of this disease are quite numerous. Among them are recorded by Allbutt the following: In the French Antilles, *pian;* in the Brazils, *boba;* on the west coast of Africa, *gatta, dube* and *tangara,* in the Moluccas, *bouton d'amboine;* in Fiji *coko;* in New Caledonia and the Samoan Islands, *tonga* or *tono;* in Ceylon, *parangi.*

The cases of yaws reported in the United States are so few that an effort will be made to refer to every case, though it is altogether probable that some cases will be inadvertently omitted. In this I am greatly aided by Professor Isadore Dyer, of New Orleans.

In 1832, Dr. Charles A. Van Zandt reported in the *New York Medico-Chirurgical Bulletin* the case of a negro man cook on board a vessel from the West Indies. The victim had slept on a bed on which one had died of yaws, and even at that early date the contagiousness of the disease was well recognized.

In 1847, Dr. R. W. Evans reported in the *British-American Journal of Medical and Surgical Science,* published in Montreal, the case of an Irishman, aged twenty years, with a definite case of yaws. The statement is made that the writer had previously seen the condition among negroes (two cases) in east Florida.

In 1858, Dr. Greensville McDowell, of Columbia, Texas, reported in the *New Orleans Medical and Surgical Journal* the case of a negro child aged two years with an ulcerating fungoid growth about the anus. The mother had yaws. He claimed that yaws was an African name.

In 1878, Dr. Joseph Jones wrote an article for the *New Orleans Medical and Surgical Journal* under the title, "Observation on the African Yaws." On October 27, 1877, he presented to the New Orleans Medical and Surgical Association a case of yaws in one Augustin Faine, a native of the Isle of Bourbon, off the coast of Africa. In 1887

this same writer contributed to the Medical and Surgical Memoirs an article entitled, "The History of the African Yaws in America."

In 1896 a case of yaws was reported by Dr. Rudolph Matas in Dennis' System of Surgery. The patient was a negro who had not been out of the State of Louisiana. The case occurred in the Charity Hospital in the service of Dr. M. S. Souchon and was diagnosed by Dr. Isadore Dyer.

In 1895, Dr. A. J. McCosh presented to the New York Surgical Society a case which was diagnosed by him as yaws. The patient was an unmarried woman of 20 years who had had syphilis prior to yaws. The latter began as a pimple just below the nasal septum which spread to the septum. At the time of presentation there was a papillomatous excrescence on the tip of the nose looking "like a very large raspberry." He thought the basis of such growth was usually of syphilitic origin. This article was published in *Annals of Surgery* for 1895.

In the *Virginia Medical Semi-Monthly* for February 9, 1900, there appears an article by Dr. R. L. McMurran under the title: "Yaws and Smallpox." He claimed that much of the so-called smallpox in his section of Virginia was really yaws. He cites the following as a case of yaws:

"February 17, 1899, Miss G. Y., age 24 years. She had a chill the night before and complained of pains in her back. After examination I found no inflammation of the mucous membranes of the throat and mouth; her temperature was 101° F., pulse 100, respiration 20, bowels constipated. I ordered a saline purgative and a little phenacetine and salol to be given her. The next morning her temperature was 100; other symptoms the same. On the morning of the fifth day I noticed some vesicular eruption on her forehead, hands, and slightly on her breast. Upon examination during this visit I found the temperature normal as well as the respiration and pulse. I still found no eruption on the mucous membrane of the mouth or throat. Her condition continued to improve with no impairment of general health. The tubercles peeled off and I did not observe any pitting afterwards on her face. Neither this patient nor L. P. (smallpox) had ever been vaccinated. The symptoms of this case were entirely dissimilar from those of L. P. and resembled yaws."

In the Proceedings of the Philadelphia Pathologic Society (N. S.), Volume 14, 1911, Captain Henry J. Nichols, of the United States Army Medical Corps, contributes a most valuable contribution on yaws. In recent years no man except Castellani has done as much as Dr. Nichols to advance our knowledge of this disease. In this article he points out the auto-inoculability of the disease in man and says that it is in line with the incomplete immunity seen in many protozoal diseases. This article will be referred to later. He makes a very significant statement:

"The skin lesions of yaws are always the same and consist of raspberry-like growths covered with a yellow crust of dried serum."

At a meeting of the New York Surgical Society held on November 8, 1911 (Annals of Surgery, Vol. LV), Dr. Henry H. M. Lyle presented a patient from Grenada, 49 years old, who gave a history of yaws. There was no history of syphilis. For symptoms of an indefinite character an exploratory laparotomy was done and a smooth, round tumor, about the size of a mandarin orange was found on the anterior surface of the left lobe of the liver. This was proven by therapy to be a gumma. The writer says that the interest in the case rested in the possible relationship of yaws and syphilis.

The following case is important for the reason that the child was born in North Carolina of parents who were natives of the same state. Neither child nor parents had been out of their county except for a short time in an adjoining county. None of the family had come in contact with anyone from the West Indies or any other more tropical country where yaws occurred. It is most unusual, in the Western Hemisphere at least, for yaws to attack a white person. Had the patient been a negro the diagnosis of yaws would have been accepted much more readily.

C. M., white; age 5 months. Seen on November 11, 1909. He was a fairly well-conditioned but neglected child. His father was a man of good habits, but a frail neurotic. His mother was a huge, sour-tempered, ignorant woman, but physically sound and free from disease. Neither parent had any history or trace of syphilis.

The child was born at term and weighed 10¼ pounds. He was breast-fed throughout, without any other food. He had colic every afternoon from birth. The stump of the umbilical cord did not heal completely until the eighth week. When he was seven weeks old I treated him for a definite malaria.

When he was ten weeks old there appeared on the back of the neck an eruption described as "red with little blisters thought to be heat." This eruption later appeared on the head and feet. There was some fever from the beginning. The lesions began as macules, then became papules, and later vesicles, pustules and the formation of crusts. The lesions stood off from the skin surface like variola, tended to coalesce and were autoinoculable. There was some itching. It was noticed that there was a definite tendency for the lesions to appear in crops and the one examined by me was the third crop. Situated on the scalp are lesions from the size of a pin-head to a five cent piece and they are made up of papules, deep-seated vesicles, pustules and crusts. When the crust was lifted there was no flow of pus, but a definite tumefaction was left beneath. The larger lesions were the result of coalescence. In many cases the larger lesions were from one-eighth to one-quarter of an inch elevation above the skin surface. On the right cheek was a large, irregularly shaped papulo-vesicular-pustular lesion. On the external surface of the right forearm was a lesion one by

three-quarters of an inch in size, made up of three large crusted lesions which were the result of auto-inoculation. The first of these was an elevated, brown tumefaction which was thought at first sight to be a rupia. There was no pus in this lesion though it stood up one-fourth of an inch above the skin surface. The lesions appeared on the palms and the soles. There was a dactylitis with the loss of a finger nail from the right hand and the loss of three nails from each foot. On one finger of the right hand was a papulo-pustular lesion about the size of a split pea. As a rule there is no inflammatory areola.

The liver was much enlarged, the lower border reaching to about the crest of the ilium. The spleen, likewise, was considerably enlarged, extending almost to the mid-line of the abdomen. There was no glandular enlargement. There was a rise of temperature every night from 101.4 to 103. Great restlessness was the most troublesome symptom. In spite of the disease the child remained fairly well nourished. Both clinically and therapeutically malaria was excluded.

Mercury in the form of the salicylate was given hypodermically without any effect.

In March, 1914, the child was again seen. He was found to be a vigorous boy with only a scar on the forearm to indicate the past trouble. The mother informed me that all the children in the house had had the same disease in less severe form. She, herself, had a mild attack. Her own account of the lesion is that after the crusts came off there was left the typical appearance of raspberries. This child was said to have been placed on a bed on which was another infant suffering from the same disease and the mother thinks the disease so contracted.

At this time my colleague, Dr. R. H. Bellamy, who saw my case, had one in his own practice, a white child, affected in the same manner.

At the time of the above observation I made every effort to arrive at a diagnosis but without success. More recently, in the light of the research of such men as Captain Nichols, and others, in their study of the action of Ehrlich's salvarsan and its effect on the spirochete group attention has been attracted to yaws as a possibility in this country. It was then that I looked up my notes and photographs of this case and made a tentative diagnosis of yaws. Not being willing to accept such an important solution to the question I submitted the photographs and notes to Professor Isadore Dyer of Tulane University Medical School. From his letter I quote as follows:

"First, let me take up the photographs. It would be difficult to make a diagnosis of yaws from the lesions on the head of the child; those on the arm are more suggestive of yaws.

"To me, the differential diagnosis in your case, from the photographs, would have to be made among bromide eruption, a vegetating syphilide, yaws and blastomycosis. The syphilis can be ruled out on the evident fungoid character of the lesions growing so well above the skin. The same would apply

to bromide eruptions, particularly if you know bromide was not given. Blastomycosis is practically unknown in infants, and, moreover, assumes a very much more formidable character than the smaller lesions in your case would suggest.

"This would leave you yaws by exclusion."

Since studying the condition more fully I am inclined to suspect that we have been overlooking yaws and that among negroes the disease has occurred frequently and has been counted syphilis. I recall in this connection a negro, prominent in church circles, who wished quick relief in order that this immoral disease might not interfere with his Sunday School connections. It was a circinate eruption which failed to respond to salicylate of mercury hypodermic injections, much to my chagrin. Looking back I suspect that this was a case of yaws, and there are others of like nature which probably were not syphilitic, though so diagnosed and treated.

In the light of the fact that such confusion may occur, and as yaws is not generally described in the American text-books, it may not be amiss at this point to go into a brief account of the disease.

The consideration of the etiology of yaws prior to 1905 has purely an academic interest. Chief among those who claimed specific organisms should be mentioned Pariez, who found a number of micrococci; Powell, in 1896, attributed it to a yeast; Nicholls and Watts, in 1899, isolated a coccus which, however, did not satisfy the postulates of Koch. In 1905 Castellani observed a trypanoma or spirillum which he named Trypanoma pertenue. This discovery is counted a direct sequel of Schaudinn's work. Both Schaudinn and Castellani considered this organism and that of syphilis to be morphologically identical at that time. Later minute differences in form were pointed out by Prowazek and Russell.

As early as 1848 Paulet inoculated fourteen negroes with secretions from yaws granulomata and in every case the disease occurred. The period between the inoculation and development of the disease varied from twelve to twenty days. In ten cases the first nodule appeared at the seat of inoculation and in two cases the first lesion appeared at some other part of the body. In 1881 Charlouis inoculated thirty-two Chinese prisoners with crusts and scrapings of yaws and in twenty-eight days was successful. He also succeeded in inoculating a native suffering from yaws with syphilis thereby successfully disproving the identity of the two conditions. It has been conclusively proven that syphilitic patients may contract yaws both naturally and experimentally.

The fact that monkeys are susceptible to the yaws infection has greatly aided in the experimental work which has resulted in such brilliant achievement. Among the chief of these workers should be men-

tioned Castellani in Ceylon, Neisser, Prowazek, Halberstaedter in Java. In monkeys the lesion occurs at the point of inoculation and the spirochete may be found in the spleen and lymphatics also. It is said that splenic blood from a case of yaws will cause the disease in monkeys. It is shown in this group of investigations that monkeys inoculated with yaws are not immune to syphilis.

Immunity experiments on man and animals form the basis of a differentiation between yaws and syphilis. Morphologically such a differentiation could not be made with any great degree of accuracy. H. J. Nichols has pointed out the fact that the recent advance in the study of syphilis by Parodi, Uhlenhuth and Mulzer marks a very decided step forward in the distinction of these closely related diseases. These observers demonstrated that a syphiloma in the testicle of the rabbit could be produced. Nichols observed a series of infections running parallel in the same animals of yaws and syphilis.

The spirochete of yaws has been transferred from man to monkey through three generations in the rabbit. Eight out of sixteen of Nichols' rabbits were infected. The incubation period varied from forty-one days in the first instance down to twenty-four in the third. The spirochete is readily stained by the Giemsa method and its detection is greatly aided by the dark field microscope.

H. J. Nichols says that "The difference in the lesion of syphilis and yaws in the monkey seems to be the surest way to differentiate the organisms. In yaws the incubation period is two to three weeks, the lesion is elevated, slightly scaly, and very edematous; in syphilis the incubation period is about four weeks, the lesion is flat, dry and very scaly. According to Prowazek and Russell, *Trepanoma pertenue* is slightly thicker than *Trepanoma pallidum,* less rigid, less regular in its twists. With an abundance of material at hand, comparative observations have been made with the dark field microscope. *Trepanoma pallidum* seems quite constantly to show more active corkscrew motion; the twists seem more regular and not so sharp and deep; but occasionally an unknown specimen has been classified wrongly on these points and no other differences seem more reliable. The lesion in the rabbit seems to differ only in degree; the nodules in syphilis seem larger and have a necrotic center; histologically, there is evidence of a more active inflammation."

In the yaws nodule there is found as a rule an absence of the giant cell so characteristic of syphilis. According to MacLeod there is also wanting the perivascular mononuclear infiltration so much a part of the pathology of syphilis. Yaws also differs from syphilis in affecting the

epithelium rather than the cutis. As a rule there is more edema in yaws than in the syphilitic lesion.

Castellani and Chalmers point out that in yaws the papules show a considerable increase in the surface epithelium with numerous downgrowths and there are many patches in which the epithelial cells are swollen and vacuolated. In addition they note sharply circumscribed areas containing detritus and polymorphonuclear leucocytes. Near the corium and its processes the layers are almost normal in appearance. They noted that the connective tissue corium forms a thin layer from which narrow, elongated, papillary processes pass into the epithelium and some of them almost reach the surface. There is decided edema of the corium and a diffuse cellular infiltration which is made up of large and small mononuclears, plasma cells, eosinophiles, polynuclears, connective tissue cells, and extravasated red blood cells. In the lesions of longer standing the plasma cell largely predominates. Hyperkeratosis develops after the existence of the yaws granulomata for a considerable time. Castellani has shown the presence of large numbers of polychromatic red blood cells of different sizes in the films taken from the granulomata. The trepanomata may be detected by the use of such staining methods as the silver stain of Levadati.

The symptoms of yaws very unfortunately are usually divided by the writers in three stages: primary, secondary, and tertiary. This is, of course, a remnant of the old view which has not yet been generally abandoned, that yaws is an evolutionary remnant of syphilis. The division is purely arbitrary and should be abandoned. These stages will be given as the text-books have them with this apology. The primary stage is the initial lesion which usually develops in from two to four weeks after the inoculation. This lesion is usually but not necessarily extragenital. This lesion is a papule which really pustulates with final crusting. It may be composed of several coalesced papules covered by a common crust. Beneath the crust is found an ulcer with sharp edges. This ulcer heals with a white scar or its forms a granuloma which is much similar to the characteristic yaw granuloma which predominates the secondary stage. Sometimes the lesion is much larger than the ones which follow and is known as the "mother yaw." This is well illustrated in the lesion seen on the child's arm in Figure 1. There is no induration in this lesion. The proximal lymphatics sometimes become enlarged but do not suppurate. The primary lesion exists in many cases for months, even long after the development of the secondary lesions as is shown in the illustration herewith presented of the writer's case. The mammæ is a common location of this initial lesion. It is

found sometimes in the situation of insect bites and abrasions of the feet in those going barefooted.

The appearance of the secondary lesions may be one month or three months after the primary lesion; again we see a lack of that definiteness which prevails in syphilis. Osler used to say: "Know syphilis in all its manifestations and all other things will be added unto you." Such would apparently be impossible with yaws from the standpoint of the usual clinical divisions. Usually the constitutional symptoms appear with the general eruption which marks this stage. The patient has headache, malaise, general aching, and some fever, though it is not the rule for him to give up his usual occupation. The lesion begins as minute round papules which acquire a yellow apex. These papules vary in size from a pin head to a small grape seed. Some remain the same size and disappear without further change. Others increase in size and coalesce. This coalescence results in the characteristic granuloma which is nodular and covered with a crust. When the crust is removed there is seen a raw surface with fungoid granulations secreting a slightly purulent discharge which dries into the crust. It is this surface which gave the name to the disease through its supposed resemblance to a raspberry. Some think this idea far-fetched and that the name had another significance. The locations of the secondary lesions are chiefly the extremities, about the anus, the face and over the chest. The scalp is rarely affected though we see an exception in the case of the child whose photograph is shown. It is a well established fact that in children the rules vary. After the healing process there is often left an area of lessened pigment. This area in many instances clears up in time but in the reported case the arm which was the seat of the "mother yaw" still shows the scar after five years.

The tertiary lesion of yaws is a matter of considerable dispute. Castellani and Chalmers, in their last edition, decided that it is a reality, that the tertiary manifestations may be delayed for many years in some cases and that the manifestation of the lesion is essentially that of a gumma affecting about as many different tissues as are affected by gummata in syphilis. At times there is a mixture of tertiary and secondary lesions in the same patient. When the skin is affected with this tertiary manifestation there results a breaking down with the formation of clear-cut ulcers with serpiginous outlines and with subsequent scarring and white markings; when the bones are affected painful nodes develop beneath the skin and a diffuse, chronic periostitis occurs which may cause deformity. Contractures of the muscles are not uncommon. So far there are no reports of tertiary lesions of the nervous system or other viscera.

It is a notable fact that yaws is not inherited but rather that it is contracted by the mother from the child. Essentially it is an affection of childhood. It is infinitely more readily communicable than syphilis and in these two manifestations we find the chief clinical points of difference.

Unlike syphilis yaws does not affect the glandular system with such regularity. The post-cervical and inguinal glands may be affected but not uniformly. When affected the process does not go on to suppuration, thereby simulating syphilis.

The prognosis in so far as life is concerned is not grave. In my own experience there was spontaneous healing. Without secondary complications death will not occur. It is economically very important, however, for it incapacitates the individual from every class of work.

It is in yaws that we see demonstrated Ehrlich's true concept of *therapia sterilans magna.* Nichols used it first in experimental yaws. Strong, in the Philippines, and Castellani, in Ceylon, were first to apply it in man. It is well recognized that salvarsanized serum has a definite curative value. In no other disease have we a better illustration of the specific action of a drug than in the use of salvarsan in the treatment of yaws. In some of the tropical islands the problem is presented to the governmental authorities whether it is better to pay for the expensive drug or tolerate the disease. With us there can be no doubt that the necessary funds would be at once forthcoming regardless of the economic value of the sufferer.

DISCUSSION.

Dr. Cyrus Thompson, Jacksonville: I know nothing at all of this disease by personal experience, and I count that this is exceedingly fortunate for the population of the State of North Carolina. I agree with Dr. Allan that we are to be congratulated and are to congratulate Dr. Wood upon the fact that he has recognized the presence of yaws in native North Carolinians and forewarned us of its possible occurrence in the State. As Dr. Wood mentioned, I was at the University of Louisiana during the session of 1877-78, when a case of yaws was discovered in the service of that great physician, Joseph Jones. The case was a negro. He looked as though he might have been a West Indian negro. He seemed to be about thirty years of age, as I recall it. I do not remember the eruption, but I do remember how he sat in his bed, with his knees up, and his toes ulcerating, some phalanges gone and others going. I remember Dr. Jones said it was a very unusual disease, a case of African yaws. I hope, though Dr. Wood has called our attention to it, that we shall never have occasion to know any more about it than we do this afternoon.

Dr. Edward J. Wood, Wilmington: I was jumping about in my paper, in order to get through in the twenty minutes allotted me, and showing very poor judgment as to what to read and what not to read. I should have mentioned the fact that the disease is one of the most contagious known. It is contracted by direct contract through abrasions of the skin. It is still a rare disease with us. I know of possibly ten cases that have occurred in New Hanover County. That is the limit of absolutely authentic cases.

OPIUMISM—ITS TREATMENT—A VARIETY OF COMMENTS.

S. M. Crowell, M.D., Charlotte, N. C.

Narcotic drug users, like the poor of Holy Writ, are constantly and increasingly with us, hence my apology for again taking up the Society's time with this old subject.

Recently the *New York Sun* stated that the American nation had outstripped every other in the volume per capita of illegitimate drug using. Within twenty years after taking up the habit, the American nation had almost as many drug habitues per capita as China had after having paid homage to King Opium for over two hundred years. It is as ridiculous as sad to contemplate that after all America did to redeem China from the curse, she has turned squarely around and succeeded China as the greatest market for habit-forming drugs in the world.

"We are now sending our missionaries to China to take the small shoes off the Chinese feet," recently remarked an eminent bishop of the Southern Methodist Church, and added that, "we would do well to have the Chinese take our women out of strange men's arms in the tango dance." He might have well added, "Come over and help us, China, to rid ourselves of the opium bondage." "In that we did it unto you, so thou do it unto us."

Much confusion has and still exists as to the true nature of opiumism; especially is this so of its *pathology*, this feature having been either erroneously conceived or totally disregarded by most authors. In my opinion, the degree of success or failure attending any effort to *cure* opiumism is in direct proportion to our comprehension of its pathology.

One class of men write extensively upon the *structural* pathology as supposedly found in the brain, cord, etc., yet the most powerful microscope has failed to show any changes in these tissues. Another class, in their "desperation," define the pathology as a "Neurosis." Whatever this may mean, in *this* connection, *God only* knows. It is very evident that the authors do not. A third class of *so-called* pathologists classify

it as a *vice*. We may appropriately call them the "Vice-ists"—the pimps—the pseudo-scientists. The *Nil-ist*, or "Know-Nothing" party, say that the pathology is *Nil*. This school has written well. Finding nothing, they so tabulate Working upon such *erroneous* bases, it is not surprising that such men as Da Costa and other eminent men say: "There's no remedy for the opiate habit"—"There's no help for the widow's son." These men evidently have observed at *"long range,"* having made but little, if any, close, personal observations of the subject.

When I took up this special work about a dozen years ago, I got the suggestion from my friend, Dr. Geo. E. Petty, our pioneer investigator along this line, that the *pathology* was the *cardinal point* around which revolved success or faliure in the treatment of narcotic drug diseases, and working successfully upon this basis for twelve years has convinced me of the correctness of the premise.

What is the pathology of chronic opiumism? It is a functional chronic toxæmia—one of drug, auto and intestinal origin—and practically every symptom following the indiscreet use of the narcotic drug is attributable to drug, auto and intestinal toxemia; and, vice versa, just in proportion to which the toxic state of the system is overcome, all the toxic and nervous manifestations disappear.

With Dr. Petty, the writer believes that if a drug patient could be made *cell-clean*, that is, if every cell and structure of the body could be *entirely freed* from toxic matter, there would be no *undue* nervous manifestations or suffering incident to or following the withdrawal of narcotics from a drug habitue. Of course it is impossible to *perfectly* cleanse the system of a drug-user *so long as any quantity of the drug is* taken; however, the closer this state is approximated, the less the suffering incident to or following the withdrawal of the narcotic.

The *pathology* as per our hypothesis has not been demonstrated by *laboratory* methods, yet we have so amply verified it in a *clinical* way as to justify us in forming the conclusion that we are *unquestionably* correct.

In opiumism the *entire system* is impregnated with opium, its by-products, effete material, toxins and ptomains generally as a result of faulty metabolism and defective elimination, and as a consequence the functions of the body cells are semi-paralyzed and so perverted that ultimately there is a state of extreme toxæmia, marked by a well known train of distressing symptoms. The alimentary tract is full; the liver inactive and the portal circulation engorged; the tongue coated, the skin alternately dry and excessively sweaty, swarthy and yellowish, and the heart action irregular and weak. With this toxemic state, we should have no difficulty in accounting for the perverted activity of every organ

in the body, as well as for the various nervous phenomena incident to withdrawal of the drug *without proper treatment.*

The sentiment and feelings of a toxæmic drug patient was well expressed by the lamented Isaac Erwin Avery in his "Idle Comments," when he said: "If the latter end of morphine and the *quitting* of morphine did not mean a circumscribed but *sure* hell, every other person that one met on the streets would have dreamy, unseeing eyes, and that no man ever quits without the ineffable torture of white nights * * * and the grim wearisome struggle over sickened manhood." "And the lesser evil, craving, or thirst—*do you know what that is?* Perhaps you have toiled along in the sunshine without water and then you have thought of a trickling spring under moss-covered rocks. Perhaps you have been so fever-stricken that you thought only of parching and easement. You call *this* thirst, and yet it is only a *child's* wish compared to that other thing—the devilish thirst that plays with a man and shakes him like a reed in the wind."

As previously stated, the most satisfactory evidence of the *correctness* of this view of the *pathology* is to be found in the *results* of the *treatment* upon the basis of the pathology as set forth in this paper.

Treatment of Chronic Opiumism.—Having to deal with a toxæmia as herein set forth, it is reasonable to suppose that we must relieve this toxemic state as the *primary step* in correcting opiumism. This must be accomplished at a time when the system is as *little under the influence of the opium* as possible, in order to avoid its inhibitory influence upon the agents of elimination.

The elimination is effected principally in three ways, *chiefly,* however, through the alimentary tract, and to a less degree through the kidneys and the skin.

Primarily, the elimination is *initiated* by the administration of a *properly-balanced physiologic* purgative. This should be given in late afternoon and night, so as to get the effect when the system is most free from the narcotic, *the last dose of opium being given about 10 p. m.* Ordinary *secretory* purgatives are ineffective in these cases, hence some agent must be added that will stimulate the motor centers, or functions, in order to *stimulate* and *reëstablish* the *peristaltic* movements of the bowels, which function has been suspended by the paralyzing action of the opium. *Strychnine* in *large* doses is an ideal agent for this purpose, as it stimulates the above motor centers.

With the secretions set up by the glandular purgatives, and the *peristalsis* reëstablished by the strychnine, large watery evacuations are effected, and the elimination of the toxins, ptomains, etc., is thus *"initiated" and ultimately completed.* As no more opium is given to interfere

with the purgative, the very best results may be expected; however, I almost constantly order either 3 or 4 ounces of epsom salts or castor oil the next morning about six o'clock, at the same hour, also, giving strychnine nitrate, from gr. 1-30—1-20 hypodermatically. Repeat the strychnine dosage every three hours till a thorough elimination has been effected.

Whatever suffering one may experience in the withdrawal of the opium—or any of its derivatives—*is due to the toxemia,* and *not to the withdrawal* of the *opium per se,* hence suffering *should not exist, and in this connection* I wish to *denounce* the so-called "Gradual Reduction" methods of treating any form of opiumism. It is impossible to thus secure the best results. The *principles* are unscientific and antiquated, and the patient treated *cruelly,* to say the least.

It is our custom to keep the patient under observation for two or three days after entering the sanatorium in order to make a thorough physical examination and to attempt to establish a cordial relation between patient and physician. During these few days of study, the patient is given his usual amount of the opium, and daily baths administered.

Now being ready for final withdrawal of the opium, the patient should be given the *physiologically-balanced* purgative above referred to and the opium discontinued. The following is a good formula for such a purgative:

Calomel Cascarine Ext. Colocynth Co.	oo gr. x
Aloin Pul. Ipecac	oo gr. I
Atropin Sulph	gr. 1.50
Strychnin Nitrat	gr. 1.8-1.4

M et ft—capsules—No. IV.

Sig: One capsule at 4, 6, 8 and 10 p. m. Leave off supper, and give the accustomed dose of opium at 10 o'clock, this being the *last* dose administered during the treatment.

The next morning about 6 o'clock give either epsom salts or castor oil and strychnine as per above. This accomplished, some good sedative must be administered to keep the patient from suffering while the elimination is being effected. Scopolamine hydrobromide, in doses of from gr. 1-300—1-100 every one-half to three or four hours apart, is an ideal agent. It may be necessary to push this drug to the point of delirium in order to keep the patient from suffering for a short period of the 24-36 hours—the length of time this sedative is usually given. At the end of this time, a hot bath is given, and some easily digested food administered.

From this time on the patient makes an uneventful recovery. Of course he is weak, but suffers no other inconvenience; takes a reasonable amount of food and sleeps sufficiently.

Sparteine sulphate in 1 to 2 gr. doses hypodermatically is often given to insure good action from the kidneys, it being a most excellent *diuretic,* and an *ideal heart tonic* and stimulant. In my opinion, there is no one drug in existence quite so effective. In 1904 during our Society meeting in this city, this same claim for Sparteine was challenged by an eminent surgeon from another State. However, afterwards this able man that he is, investigated my claims for the drug, and his labors were evidently rewarded with success, for he now writes in his book on surgery that he *knows* that he has thus *saved the lives* of several patients. He used it in the *proper* doses, *observed* and *saw* the results, as all may who honestly and properly test the drug. But little medicine is given usually after the first week. Baths, static electricity, massage, etc., are used as needed.

From time to time I have insisted that it was our duty as representative citizens to agitate the establishment of a State-wide institution for the care and treatment of inebriety and chronic narcotic drug diseases for the indigent class, and it is this point that I now wish to emphasize. Such an institution may be made self-supporting. There are a number of sanatoria for the more *fortunate* class who have money, but no place of relief for the *poor* class.

In establishing a "Home for Fallen Women" why not also one to include this class of indigent "fallen" men? Shall we continue to send these victims to *crude prisons* instead of committing them to well equipped *sanatoria* for scientific treatment? Or, more horrible, still, shall we continue to electrocute these poor victims without first offering them treatment? Within the past few days I was present when the able, big-hearted presiding judge, with crushed heart and tears coursing down his furrowed cheeks, was forced to sentence to the electric chair such a victim.

I wonder if these unfortunates will rise up against us in Judgment and call us negligent—unjust—unholy? Suppose we request our next legislature to consider this proposition.

THE PREVENTION OF MENTAL DISEASES.

Paul V. Anderson, M.D., Richmond, Va.

The success of the campaign against tuberculosis has demonstrated what can be done when both laymen and physicians become aroused. Prevention of tuberculosis has been the watchword in this campaign, and if we can only get both laymen and physicians to realize that mental disorders are diseases, and in many cases can be prevented, a great step will be made towards controlling these troubles, which do not kill quickly, but which maim and mar and incapacitate, and, at times, make life almost unendurable to those afflicted by them.

The importance of a grave consideration of this problem of the prevention of mental disorders is demonstrated when we realize that on January 1, 1910, there were 187,454 persons in institutions for the insane in the United States. This number, according to the statistics obtained from the National Committee for Mental Hygiene, exceeds the number of students in the colleges and universities of America, and it is also greater than the total number of officers and enlisted men in the United States Army, the Navy, and the Marine Corps.

Again, from an economic standpoint, the cost of caring for the insane exceeds any other single item of expense in a state except the amount expended for education. In New York State one-sixth of the total income of the State is expended for the care of the insane. It is estimated, too, that the cost of caring for the insane annually, at a per capita cost of $175, amounts to $32,804,450, which is greater than the amount spent annually in the construction of the Panama Canal. In addition to this vast sum must be added that which comes from the withdrawal of wage earners from each community. The United States Commissioner of Labor states that the average value to the community of an adult between 18 and 45 years of age is $700 a year. Upon this basis, the economic loss due to insanity is $130,000,000, and this, added to the cost of maintenance, would give $162,000,000, an amount equal to the entire value of the wheat, corn, tobacco, dairy products and beef annually exported from the United States. These statistics do not give a definite idea, however, of the more serious results of mental trouble, *i.e.*, the vast amount of personal suffering and unhappiness, besides family and business troubles. Much of the loss of efficiency, marital unhappiness, suicides and crimes have as their basis mental disorders which are not recognized.

The chief of the essential causes of mental disorders, according to Rosanoff, are alcohol, syphilis, heredity and head injuries. In addi-

tion to these, of course, are drugs, the toxins of various diseases, diseases of the digestive and reproductive organs, and various bodily disorders, exhaustions, nervous diseases, shocks, worries, etc. Especially should be mentioned just here maladjustments, *i.e.*, "an individual fails to get into harmonious adjustment with his environment." Dementia præcox is a type of such maladjustment.

Alcohol.—Alcoholism is responsible for the mental disorders of from 20 to 30 per cent of male patients admitted to hospitals for the insane. In 961 cases of alcoholism studied at Manhattan State Hospital, New York, 55 per cent of men and 22 per cent of women owed their psychosis to alcohol. Alcoholic psychoses are delirium tremens, acute hallucinosis, the polyneuritic psychoses, chronic paranoid states and alcoholic dementia. These troubles come, at times, from alcohol used in moderation, especially if the individual is neurotic in type. The last report of the State Hospital Commission of New York states that in 54 per cent of the cases of alcoholic insanity there was a family history of insanity, epilepsy, or nervous disease. This leads one to believe that the individual who becomes insane from the use of alcohol has, in the majority of cases, "a peculiar nervous makeup." Wallin states that five to ten per cent of the feeble minded; ten to twenty per cent of the epileptic, and a large per cent of pedagogic backward and nervous disorders in children is due to alcohol.

Syphilis.—From ten to thirty per cent of patients admitted to state hospitals are suffering from paresis. The number varies according to the locality, *i.e.*, country or city. Three times as many men suffer from this disease as women. Last year 627 patients died of syphilis in the New York State hospitals which was more than half as many as died from typhoid fever in the State. Cancer of the breast —a very prevalent disease in the same State—caused no more deaths than paresis. In examination of 100 children—offspring of paretics—Dr. Plaut states that 45 per cent plainly showed damage mentally or physically, or in both fields, and the Wasserman reaction showed that one-third of these children had syphilis.

Heredity.—As far back as Hypocrates the fact was known that mental and nervous disorders were transmitted by heredity, *i.e.*, a nervous or mental instability is inherited. Rosanoff gives the following theoretical expectation:

1. Both parents being neuropathic, all children will be neuropathic.

2. One parent being normal, but with the neuropathic taint from one grandparent, and the other parent being neuropathic, half the children will be neuropathic and half will be normal but capable of transmitting the neuropathic make-up to their progeny.

3. One parent being normal and of pure normal ancestry and the other parent being neuropathic, all children will be normal but capable of transmitting the neuropathic make-up to their progeny.

4. Both parents being normal but each with the neuropathic taint from one grandparent, one-fourth of the children will be normal and not capable of transmitting the neuropathic make-up to their progeny, one-half will be normal but capable of transmitting the neuropathic make-up, and the remaining one-fourth will be neuropathic.

5. Both parents being normal, one of pure normal ancestry and the other with the neuropathic taint from one grandparent, all the children will be normal, half of them will be capable, and half not capable of transmitting the neuropathic make-up to their progeny.

6. Both parents being normal and of pure normal ancestry, all the children will be normal and not capable of transmitting the neuropathic make-up to their progeny.

Maladjustments.—Life has been defined by Herbert Spencer as "the continuous adjustment of internal relations to external relations." We meet in life all gradations of maladjustments, from a total disability to a slight deviation. Idiots, imbeciles, and the profoundly demented are wholly unable to adjust themselves. The weak minded and some types of chronic insane show some slight power of adjustment with assistance. Another class are epileptics and those who have recurrent mental outbreaks who have a higher but still incomplete adjustment with assistance, while a still larger group—neurasthenics, psychopathics, alcoholics and so-called nervous people who have a complete adjustment with assistance, and finally there are those odd and eccentric who have the so-called artistic temperament and who show only a slight maladjustment.

Prevention.—It is stated by Dr. Allen G. Starr that at least 35 per cent of mental disorders are due to preventable causes. Others state that this percentage should be 50. Now, concerning the prevention of alcoholism, little can be said which is not being daily discussed by the press, *pro* and *con.* I do believe, however, that it should be more generally known that alcohol as a food or a sedative is not a physiological necessity, and that alcohol is not only harmful when taken in excess but even when used in moderation. It is interesting to note just here that since the Gottenburg law was enacted in Sweden in 1855 insanity due to alcohol has been reduced from 25 to 30 per cent at that time to from 5 2-10 to 7 19-100 per cent in 1899. Again, it has been shown that where prohibition laws have been enacted crime and pauperism have been reduced.

The prevention of syphilis, too, is a difficult problem, for it is largely

associated with the control of prostitution. Since the micro-organism has been discovered which causes this plague of mankind, syphilis, from the bacteriological standpoint, should be more readily prevented than other common infectious diseases. The discovery of salvarsan bids fair to become the most potent factor in the prevention of syphilis than anything yet known to medicine. Whether it completely cures syphilis, or whether it in any way prevents the development of para-syphilitic or post-syphilitic conditions cannot be said. It is true, however, that it causes the disappearance of the spirochaetapalda from the superficial lesions and heals the lesions themselves. There is ground for hope, then, that the infectious period of syphilis will be reduced from several years to a few weeks. There is also a method of prophylaxis, that is, local inunction with calomel ointment. It has been shown by experts in the Navy and Army that these inunctions, even when used from twelve to eighteen hours after exposure, have proved efficient. These measures will eventually reduce the number of cases of paresis. For the prevention of hereditary cases of syphilis, Fournier gives the following rule: "When a woman is pregnant with a child threatened by paternal antecedents with syphilitic heredity, syphilitic treatment of the mother, although healthy, constitutes for the child a real and powerful safeguard, and for which there is a precise and formal indication."

Although it is out of place just here, I wish to mention the importance of the early recognition of paresis, which causes so much unhappiness, not only to the victim but to his family and friends. White admirably expresses the condition when he says of paresis, "Manifesting itself in its incipiency by symptoms of defective intelligence, lack of judgment, memory defects and moral obtuseness, we frequently see the most pitiful picture—a previously respected citizen—father of a family, occupying an enviable social position, become at the height of his career an ardent worshiper at the shrine of Venus and Bacchus. Friends and relatives see nothing in these manifestations but the outcropping of original sin and are distracted by their inability to stay the career of drunkenness and vice upon which their erstwhile respected relative has entered. How many heartaches, how many pangs of anguish, how many blushes of shame could be spared the wife and children of such a man if the family physician did but recognize in these occurrences the symptoms of the onset of a mental disease and advise them what course to pursue?"

The prevention of infectious diseases which are being brought under control through laboratory investigations will materially reduce mental troubles due to these causes. An illustration of this is the fact that spinal meningitis has been reduced from 79 to 29 per cent under the in-

vestigations of Dr. Flexner, of the Rockefeller Institute. This disease has brought about many cases of mental trouble, many of which can now be prevented.

I wish to speak briefly of the individual who is unable to adjust himself to his environment and who develops a psychosis as a defence or a refuge from the world in which he cannot fitly live. As a consequence, he creates a world of his own and lives in his delusions. Individuals who develop dementia præcox are of this class. A timely recognition of such cases and the proper treatment can save many of them from a mental collapse.

In conclusion, then, we have seen that alcohol is the chief causative factor of insanity and not until the majority of the people become aroused as to its dangers, even when taken in moderation, can much be expected towards the prevention of alcoholic psychosis. Concerning syphilis, the future looms big with hope as to prophylactic measures for the prevention of the disease and for its cure by early and proper treatment, in this way preventing paresis. Infectious diseases, as has been stated, are being controlled, thus incidentally diminishing the psychoses due to them, but little can be said at this time concerning the prevention of head injuries. The question of heredity is much discussed, but we cannot yet control parentage. We can, however, recognize abnormalities in children, and the earlier this is done the better for the child. Idiots and imbeciles should be segregated. Physical defects in all children should be corrected. Backward children should be examined, and, if possible, the cause of the defects ascertained. Special classes should be organized for such children. Everything should be done so that the child may reach his maximum physical, mental and moral potentiality to the end "that he may become a productive civic unit, and not a social drag."

If the medical profession will only realize that many mental disorders can be prevented and if they will appreciate the grave importance of the early recognition of the premonitory symptoms of many of these disorders and their prompt treatment, many an individual can be saved from a life which is worse than death and many a home can be spared this greatest of sorrows.

DISCUSSION.

Dr. Albert Anderson, Raleigh: I regret to see this paper go by without discussion. I feel that it is a matter of such importance that we ought to emphasize some of the points. During the recent meeting of the American Medico-Psychological Association in Baltimore we had two sessions on the Mental Hygiene work of the ten states already organized. At the evening meetings we had some widely known speakers of

international reputation. Dr. Adolf Meyer, Dr. Paton, Dr. Barker and Dr. W. H. Welch were some who spoke on "The Prevention of Insanity." All of the speakers concurred in the opinion of the possibility of preventing mental sickness. I believe the highest authority of this country now is Dr. Thomas W. Salmon, retired army officer, assigned to do work for the National Committee for Mental Hygiene, and a very distinguished alienist. He is considered a genius at his work. He thinks that two causes, namely, alcoholism and venereal troubles, cover at least fifty per cent. He is a man who can speak with authority because he has had at his disposal the data of the largest hospitals in New York and other northern states, and has has had opportunities for research work. Dr. Salmon is now giving his attention to the investigation of this matter, not only from clinical records but from laboratory records of these great hospitals. If it is possible to do what he claims, it is highly important that we should know these facts in North Carolina. It is a great burden to us who are running state institutions to go up against the financial proposition of taking care of our mentally sick. We are also trying to do away with the stigma of insanity as considered by the general public. The importance of knowing that a man, woman or child is sick mentally is just as great as the importance of knowing when the body is sick physically. It is regarded now as a stigma, disgrace or dishonor to become insane. We should do away with this idea and encourage people to seek advice when mentally sick. This is one of the objects of our Mental Hygiene movement. We want our people to seek advice early and from the right sources. It is much more important to seek advice for a mental trouble than for a physical, because mental cases so often become chronic when neglected. The great point brought out by Dr. Pendleton in the economic phase of this question is one that we must reckon with, because if this increase continues it will in the course of time bankrupt our State to take care of our insane. To take care of all the cases now that apply to us would almost double our expenses. We must look at this thing from a preventive standpoint to cut off the supply of insanity in every way possible. Of course, the fight against alcohol is going on, but there are other questions, such as the proper management and grouping of school children, and sociological troubles we should take up with vigor and intelligence. If we can get the objects of our Mental Hygiene movement well understood by the profession and let them be leaders in directing the masses of our people we can cut off a large per cent within a few years and stop the increase. There is one thing our profession must recognize, and that is their lack of knowledge in making proper diagnosis of purely psychic troubles. We all know that in physical troubles the mind is

affected at different levels. In general practice there are different physical levels which affect the mind. All traumatic troubles have an effect upon the mind and nerves to a greater or less extent. There is another level known as the bio-chemical, including all drug effects, and another class including toxins that come from infectious and contagious diseases, etc., but when we come to the purely mind level there are a great many things that we cannot understand and we dismiss them without attempting to understand them because of lack of training for this work—so I believe if we give our attention more thoroughly to the causes of mental sickness we can stop this increase, and it is as much our duty to stop this as to stop typhoid fever and other infectious diseases. I am glad to see more papers of this kind given to our Societies, that our attention may be called to this great question which is far-reaching and disturbs us in so many ways. It is time for us to be considering this great problem.

Dr. A. S. Pendleton, Raleigh: I feel that I know tremendously little about mental disease, but I feel that I shall have not done my duty if I should not express my appreciation of Dr. Anderson's message. I want to add my mite to the tremendous importance of early diagnosis in mental disease. At the State Hospital we get cases of dementia præcox and of paresis that have advanced so far before their arrival that we realize there is no hope for improvement. You should remember in your general practice that any man or woman over 40 whose disposition seems to suddenly change more than probably has paresis. Examine them carefully with that idea in view, because it seems quite probable that if the diagnosis is made thus early, we may hope to secure results, certainly to arrest the disease when it has progressed no further, and perhaps to improve even the condition.

Now in regard to dementia præcox. As we know, it is usually a disease of puberty, and you whole-time health officers and you school inspectors are the ones we must depend on for early diagnosis. It is the exception when the family physician sees these cases early enough to be of assistance. It is the whole-time health officers' business to find these cases and put them under treatment early enough to secure results. We hear that syphilis is responsible for a large percentage of mental disorders. The doctors of North Carolina smile in a superior sort of way and say that applies to New York and other big cities. But I say it applies to North Carolina. You would be surprised to know how many of our patients at the State Hospital respond to the Wassermann test, and you would be grieved to know how many have been allowed to go so far that there is absolutely no hope of doing anything except to care for their wants until the good God calls them hence.

MEDICAL TREATMENT IN SUMMER DIARRHEAS.

CHAS. S. JORDAN, M.D.

Acute disease of the gastro-intestinal track is the commonest and most perplexing affection of childhood. Gastroenteritis and its congeners forms one-half of the whole number of infantile disorders, and constitutes very near the total mortality of children in the first year. The various intestinal infections are not regarded as distinctive diseases, but merely different forms of a common infection, depending or topography, severity and symptoms. Etiologically speaking, sidesteppings in eugenics, bad habits and heredity are the underlying causes. Unhygienic surroundings, careless feeding and over-feeding, unwholesome water supply, uncleanliness, injudicious clothing, artificial feeding, atmospheric changes and *excessive hot weather* are really the active factors in the causation of summer bowel complaint.

We think, and consider ourselves, progressives in medicine today, and yet when we look back a full century or more we can get points, especially from our Chinese brothers in the way that medicine or care of the sick was practiced, viz.: The Chinese Doctor was paid so long as he kept the patient well. On succumbing to a disease in any form, such remuneration ceased. What mental picture does this bring before you? This was preventive medicine in its primal form; today never was preventive medicine more needed than in combatting the summer complaints of intestinal infection of our would be men and women of tomorrow.

In the care of our young of to-day, it behooves the wise doctor to instruct the observant mother that "an ounce of prevention is worth a pound of cure," for in so doing, we find that summer diseases can ofttimes be nipped in their incipiency, and much anxiety and after-anguish averted.

As I stated in the beginning of this paper, it is on medical treatment only; so breast-feeding, milk and other artificial feeding, along with Eiwee's milk and the Bulgaris tablet, will be left for consideration at another time, as far as we can draw a dividing line between the two.

The first stage of an intestinal complication we will designate as the pre-diarrhea preventive state. It is here the doctor ofttimes makes his ten-strike by close inspection of his little patient. The active energy of a child is supplemented by a feeling of malaise, a loss of appetite, which is unusual, slight constipation, a dulled expression in the eye, the conjunctiva losing its blue white color and slightly tinged or cloudy, ofttimes marked by slight injection and inclination toward nausea.

These symptoms, taken as a whole, are the beginning of an attack of summer diarrhea. This condition you see so often that too much stress cannot be placed upon it.

Now is the time when the initial dose of castor oil carries with it its full value. In this stage the temperature is still normal, pulse slightly quickened, possibly some gas distension and ofttimes constipation. Following the ingestion of the castor oil, small doses of freshly rubbed-up calomel, ipecac and soda will ofttimes complete the cure. While so doing, the stomach must be allowed, for twenty-four hours, as complete a rest as possible. If the stage of our trouble has advanced further, more congestion taken place, a diarrheal condition supervening, this same treatment will have to be carried out, only closer attention must be paid as far as feeding is concerned. All milk must be stopped and cereals substituted or broths in some form used, and these at long intervals. It is in this stage that our gastric track is hyperacid, causing fermentation of all food contents. The liver and spleen are slightly enlarged. Our castor oil having swept clean the track before it, the calomel, which is not changed in the stomach in spite of its acidity, mingles with the chyme poured into the duodenum, is here converted into the black oxide of mercury, which is extremely irritating and causes great activity to the bile duct and gall bladder, as well as the pancreas. This extra stimulation of these two glands which, as you know, are always alkaline, overcomes the excessive acid in the incoming chyme.

There is a remaining part of your mercury which further down in the intestine is changed into the bichloride, picked up by the circulation, carried through the portal vein directly to the hepatic cells themselves. Having neutralized to a great degree this acid chyme by extra stimulation of gall bladder and pancreas, the intestinal track is placed in a fortified condition to overcome the pathogenic effects of the bacteria in their variety of forms. It is here that the bowels must be kept active so that the toxins produced by flexna shiga, gas and colon bacilli will be neutralized as much as possible. The proteins and carbohydrates are ingested in an alkaline medium. So we see the absolute necessity of our bile excitation and increase of the pancreatic flow, and it likewise follows that the fats, in order to prove their value, demand absolutely a bile medium. As this congestion increases in the intestinal tract, the condition becomes alarming only when the integrity of the intestinal epithelium has been fractured by these bacterial fermentations. It is then we see a change in the temperature, a change in pulse and a change in the abdominal topography, for now this toxin invasion is in earnest, they begin to invade the mucosa and the sub-mucosa of the

ileum as well as colon. Catarrhal conditions increase, tissue destruction takes place, mucous formations begin, as well as small blood vessels being broken. The stools now, instead of being large and watery and free of pain, are just as frequent, but composed of an acid mucus, small in size, bloodstained, odor peculiar and pain severe.

Internal antiseptics are used to great advantage under conditions like this. Many of our best pediatricians recommend bismuth sub-nitrate, of known purity, in large quantities. As Kerley states, he has used hundreds of pounds at times like these.

The chemical action of bismuth is simply as a neutralizer of this acid condition. It forms an earthy coating to the irritated tract, uniting with the sulphur in the secretions, which they lessen, forming dark, almost black stools. Again, bismuth and salol or tannabin, with small portions of Dover's powder, act well.

It is at this time that the opiates can be used with great advantage, but in their use great care must be exercised for, with all things good, they must be handled with a very gentle touch. Of the opiates, paregoric, carrying with it its dual capacity of stimulant and sedative, stands first. Even in giving this, the doctor must watch, and a nurse skilled in children must be in charge.

Deodorized tincture of opium and tiny hypodermics of morphia are ofttimes used and can be of great advantage, but, as stated above, extra care must be observed.

Another real antiseptic is the sulpho-carbolate of soda; its action, to begin with, is alkaline; the soda being neutralized, the sulphur set free antiseptizes the gut, phenylic acid is formed and taken up by the circulation to act as a bactericide. It is at this time that colon injections are resorted to, the stools being very frequent, painful and in composition mostly mucous and bloodstained. These injections are of normal salt solution with the addition of one to two teaspoonfuls of bicarbonate soda to the quart; given one daily, they bring great comfort. Much skill and care is to be exercised in the giving of high colon injections. The doctor should superintend the first injection and see that every care is given, and, not only that, but that the nurse is thoroughly skilled in what she is trying to do. A great deal depends on the comfort of your patient, as well as the result of your injection. Following the flushing of the bowel, a second injection can be used, composed of europhen, in an emulsion of mucilage acacia, two ounces in quantity with one, two or three drops of deodorized tincture of opium to this amount, which is allowed to remain in the diseased bowel. The absorption of the opiate, in this connection, is rather uncertain and should be watched most closely, because ofttimes results vary. At this point, your temperature

is high, skin is dry and nerve tension higher; here great benefit is derived by the use of phenacetine with caffeine citrate to the point of getting a warm sweat.

The child's bath must be given regularly, for the skin must be kept in good condition; in addition, the bath relieves much of the nerve tension and is of great comfort. If the temperature demands it, in addition to bath, frequent spongings, part alcohol and part water, may be given. As for water internally, they crave a great deal—it should be given in small quantities and often, but preferably small portions of cracked ice and sometimes, where nausea is pronounced, two or three or four drops of brandy on the cracked ice will aid in allaying this condition. With such a state of low vitality, the clothing must be looked to—wool of lightest weight is worn best and keeps an even skin circulation.

When stimulation, at this stage, is resorted to, brandy can be relied upon. Morse and others assert that it is equivalent to so much water, but from empiric evidence, this is not true and we get a sedative as well as a stimulant effect. Other stimulants are used with splendid results—camphor, caffeine, strophanthus and strychnia.

In abdominal pain and distention, with or without nausea, a plaster large enough to cover the whole abdominal site composed of one (1) teaspoonful of mustard, three (3) of pulverized mixed spices and ten (10) of flour, proportionately speaking, gives great comfort and can be left on for several hours without fear of blistering the tenderest skin. Your urine examination in 15 per cent of these cases shows albumin with hyaline casts; this is transient, however, as it clears up as recovery takes place. There is one drug which, after further trial, in my mind, will prove one of the greatest factors in these cases of acute diarrhea in children, and that is iodine in solution. We have here something ideal as far as general action goes and I predict the time is not far off when we, as progressive medical men, will be using iodine in troubles of this kind as a specific. It is, as you know, a stimulant to the circulation, a glandular resolvent, a bacterial inhibitor, a toxin neutralizer and a spore destroyer.

In closing, gentlemen, there may be many points in this paper which have been overlooked and have been hastily dealt with. For such, I ask pardon, but I beg to call your attention again to one point in this paper, and that was what I designated as the pre-diarrhea preventive state, for if this is looked after as every conscientious doctor and one thoroughly awake should, the need of papers on this subject will grow smaller, smaller, and smaller.

DISCUSSION.

Dr. C. D. Thompson, Lincolnton: I just want to confirm what the doctor has said about these patients. I dislike very much to see this paper given the go-by without discussion. It is to my mind one of the most important papers we have heard. The doctor has gone over the ground thoroughly and carefully. I find that the doctor's line of treatment is just about the same as mine, except that I notice that he uses coal tar preparations. I steer very clear of them, especially in this condition. As to stimulants, the best results I have ever gotten from any stimulant is from W. Strophanthus. I use very little alcohol, practically none.

Dr. Rose: This question has been one of extreme interest to me, as I make a specialty of children's diseases. I would like to ask if any one has ever had the result in the administration of bismuth that he did not get the characteristic reaction in the stool. I have found that sometimes in these cases you go on with large doses of bismuth and do not get any reaction at all in the stools. It has been a puzzle to me to know why we do not get that reaction. This summer I saw it stated that that condition was often found in treating disarrheal diseases of children, and it was stated that it was due, that is, that you did not get this characteristic reaction, because of the lack of sulphides in the intestinal tract, and it could be overcome by the administration of small doses of sulphur. Well, I proceeded to try it, and I got very good results. I remember in one case, especially, I had a child taken suddenly ill. The child was unconscious for eight days, the bowels moving 8 to 20 times a day. I could not get the characteristic reaction. About that time I saw this little article and I tried this on the child and within 24 hours I got the characteristic reaction and in 48 hours there was a great improvement and the child made an uneventful recovery. It has worked marvelously for me.

Dr. R. S. Stevens, Raleigh: It has been my experience in a good many cases that I could not get the characteristic bismuth stool, I mean the change in color. I remember one instance in my own child. I used full doses of bismuth, gave it to her myself and I added the sulphur and never did get the characteristic reaction. I have struck some cases where I never do get the bismuth stools and fail to get any results whatever from bismuth. Unless you can get the characteristically dark stools from bismuth I do not think it does any good. I have given sulphur in connection with bismuth in doses three or four times as large as the doctors recommend, and, as I say, my experience has been very different from his, because I have failed to get the characteristic dark grey

stool. In this type of cases I find that bismuth does practically no good.

Another point the doctor made in his paper was in regard to high irrigation in summer troubles. I must say that I have tried that pretty thoroughly and if I ever accomplished anything much but to scare the child half to death and distress the parent I do not know what it was. In other words, my experience with colon irrigation has been such as to condemn its use.

Dr. L. W. Elias, Asheville: The mortality among babies now is pretty nearly as high as ever. I do not know that we have made much improvement since Adam. Dr. Jordan has covered the medical side thoroughly, because he is certainly a specialist on doing that. The idea of giving sulphur with bismuth certainly works well. These books also say that the child should have at least one high irrigation. If the irrigation helps, give it once or twice a day, but it should be given at least once to see what it will do. In the little experience I have had within the last year I think the most practical advance we have made is the use of albumin milk. It resembles, in a way, a drug. It is useful for anybody, particularly among poor people in the country, where people will not feed the baby according to instructions. The doctor puts up each powder in a little pill box. The patient's parents think it is a drug and if you impress this upon them you can get the food given at regular intervals. It is not irritating and saves much of the starvation we used to have to subject babies to.

Dr. N. P. Boddie, Durham: I want to emphasize the facts that Dr. Jordan brought out about calomel. You have to give it in big doses. I have frequently given it a grain in a dose for eight or ten doses. I usually give a very small portion of Dover's powders with that. I frequently combine Dover's powder, aspirin, Bismuth S. N. and calomel. That makes a favorite prescription of mine for children. It controls the fever and stools, stops the vomiting, and stops the pain. I think if you would all try it you will find that it works like a charm. It has had a very happy effect in most of the cases I have treated.

Dr. H. D. Stewart, Monroe: This thing of treating children is more theoretical than practical, especially when you come to stopping diarrhea. You know it kills more people than anything else but consumption. If you let diarrhœa go very long you are not going to be able to stop it at all. Just as soon as you let diarrhea go to a certain extent you will not be able to stop it. It will stop only with death. We have just had a regular epidemic of colitis in our county, over a hundred cases. These cases ranged from 3 years old down. Some of them after

going two weeks or more were very hard to stop. Some going only two or three days were easy to stop. I think if you will keep the child on his back and use some suppositories with a little opium and wash out the bowels, I think you will be able to stop the diarrhea. After all, it is a commonsense matter. The child soon gets to the point where he will die of exhaustion or starve to death.

Dr. Chas. S. Jordan, Asheville: One question was asked me by a doctor in regard to the use of coal tar preparations. Of course we recognize the general physical weakness, but I find that small portions of phenacetin and a little caffein have never yet gotten me into trouble. But in using this you have to watch your patients and as I say when you get that slight warm moisture, then stop, because if you press it further you will get yourself into trouble. In addition to the antiseptic qualities that phenacetin has, it is a beautiful sedative. You get the double application, and when used with caffein you will not get the suppression you otherwise have.

The only mistake the doctor made in giving the sulphur was in giving washed sulphur. Not enough of the sulphur was given to make the sulphide possible.

Dr. R. S. Stevens, Raleigh: I still think there is a certain type of cases of dysentery in which you can not get the characteristic bismuth stools. I have tried it four or five times as recommended by Curley, and I find that cases of that type practically all die.

Now, as to the colon irrigation, I think we have got it confused a bit. There is quite a difference between the slight indigestion of children and genuine entero-colitis. Of course where you have a slight indigestion you can accomplish something by irrigating high, but to attempt this with a child whose bowels are sore and inflamed, blood oozing out, my experience has been that it does more harm than good.

SYPHILIS IN CHILDREN WITH SPECIAL REFERENCE TO MODERN THERAPY.

Lewis W. Elias, M.D., Asheville, N. C.

For generations syphilis has been a disease in a crystalized form. The pathology and symptomatology were classic, and the treatment a specific. So true was this that interest in the malady had largely ceased, except in doubtful skin lesions or internal disorders. But with the introduction of the Wasserman reaction and of Salvarsan, investigators the world over were drawn to a reconsideration of the disease in the light of these fresh discoveries. This has brought out new facts,

and reaffirmed old ones on more scientific grounds. So the disease now presents a freshness and interest that it has long been without.

A brief review of the chief points in syphilis may help to clear up some of the haziness that is apt to envelop an old subject. I shall confine myself to the pediatric aspect of the disease. However, the nature and effects of the spirochete are the same in both hereditary and acquired syphilis.

The spirochete pallida, the infecting agent of syphilis, is a motile spirillum. Its movements are in three directions: a drilling, a bending, and a back and forth movement. The presence of the spirochete is demonstrated in the various lesions. While acquired syphilis is very contagious, the hereditary form is only mildly so; and there are few reported infections from such cases. The new tests have not entirely cleared up the point as to which parent is directly responsible for the infection of the child. It is significant, however, that the mother's blood almost always gives a positive Wasserman reaction.

Generally speaking, the early lesions of syphilis in babies correspond to the secondary form in the adult; while the late form in older children is similar to the tertiary manifestions in the adult. Evidence of syphilis almost invariably appears in the first three months of life. Of 1,000 cases the symptoms appeared in the second, third and fourth weeks in over 55 per cent. Usually the "snuffles" and hoarse cry caused by the catarrh of the nose and larynx are the first things noted. This is followed by the eruption upon the face, neck and extremities and upon the hands and feet, usually scant upon the chest and the abdomen. This is a macular eruption, of small, dark red spots, which comes out slowly—one to three weeks—fades gradually, and leaves a copper colored stain in the skin for a long time. A squamous eruption is frequent on the soles of feet and the palms of the hands. The fissures of lips and anus are very prominent diagnostic points. Mucous patches are seen upon the mucocutaneous surfaces, and where the skin is thin. The early bone lesions are an epiphysitis of the long bones resulting in tenderness and often pseudo-paralysis. The spleen almost always is enlarged in all stages of syphilis. The liver may be enlarged. The nails in early syphilis may be claw-shaped, or may come off. Malnutrition and cachexia are often marked, the infant presenting a most wretched appearance.

In late syphilis we have notched teeth, the characteristic ones being the central incisors, which have a shallow curved notch, often discolored. There may also be various other deformities of the teeth. The shaft of the long bones is affected in late syphilis, an osteo-periostitis, resulting in a general enlargement of bones; also the bones of the

cranium may show nodules. Gummatous deposits may appear at this stage in the viscera, the skin or the mucous membranes, which, if they break down, form ulcers. The eyes may show an interstitial keratitis. Sudden deafness may occur, which is usually permanent. The glands, especially the epitrochleas, may be slightly enlarged, and if so, are of diagnostic value. The spleen is enlarged and often the liver.

It may be well to emphasize a few diagnostic points in syphilis that are occasionally confused. The glands, if enlarged, are a late symptom. The notched teeth are found only in the second set. The diseased or deformed nails are an early symptom. The bones, generally speaking, in early syphilis, are affected at the ends; in late syphilis it is the shaft; while syphilitic dactylitis comes between these two stages.

While the diagnosis of syphilis formerly rested upon such symptoms as could be found suggestive of the disease, we now have measures which are so sensitive that they respond not only to active and pronounced cases, but also to the mild and latent infections, even when no gross symptoms exist.

The Wassermann reaction, using the blood for the test, and taking no account of symptoms, has detected the presence of syphilis in cases that otherwise would have gone undiagnosed. The test is a very delicate one, and as modified by Noguchi is even more sensitive, so that save in the hands of skilled laboratory workers, especially those with experience in interpreting the reaction, there are large chances of error. The extensive employment of this test by improperly equipped workers has caused much confusion, and has worked great injustice to many patients. This fact has cast some doubt upon the accuracy and so the value of the test. But Holt, while admitting that the test is not infallible, says that "it is the consensus of opinion at present that latent as well as active syphilis gives a positive response to the Wasserman test," and "that children who react positively should receive the benefit of anti-syphilis treatment." As to errors in the test, he says that "with proper technic they are chiefly on the negative side and not numerous."

Holt's conclusions were drawn from a series of cases in the Babies' Hospital, the Wasserman reaction being done under the supervision of Noguchi, and by one of his assistants. Thirty-one cases of syphilis gave thirty positive reactions; the thirty-first case was a five-months-old baby that had been treated regularly for three months with mercury. Of 178 cases not regarded as syphilis, 167 were Wasserman reaction negative and 11 positive. Of these 11 eight were later shown to be syphilis by other findings.

Blackfan, Nicholson and White, in a series of 101 hospital cases, had

a similar experience and felt equally convinced of the accuracy of the test.

A still further method, which is becoming more and more popular, is an examination of the cerebrospinal fluid along with the Wassermann reaction of the blood. This gives a positive Wassermann reaction, a lymphocytosis and an increase in the albumen of the cerobrospinal fluid.

The Luetin test of Noguchi is made by injecting into the skin an emulsion of killed spirochetes of different ages and strains. This is followed in positive cases by an indurated papule frequently going into a pustule, which lasts four or five days and is followed by a brownish discoloration which may last several weeks. Noguchi considers this test accurate, and Alan Brown's experience with it in the Babies' Hospital was satisfactory. While it requires experience to properly interpret the reaction, the Luetin test is very simple and suited to the general practitioner. If it proves as accurate as it now promises, it will probably be as generally used as the Von Pirquet tubercular skin test, and may largely replace the difficult laboratory Wasserman reaction.

As to the prognosis in syphilis, the younger the infant the worse the outlook when the symptoms first appear; breast-fed babies have a much better chance than those on artificial food. And, by no means least, those do best where treatment is begun early and continued regularly. Holt's and Brown's conclusions are that "the best results in hereditary syphilis are obtained by the early use of salvarsan followed by mercurial treatment.

One of the odd things about the treatment of syphilis is that, in a disease where we already had one of the few known specifics in all the wide range of medicine, we should have found another and a far more active treatment. Salvarsan, with all of its brilliancy in the treatment of adults, did not at first become so popular in treating children, for two reasons: First, because of the frequent necrosis at the site of the injection. Second, its intravenous use was difficult on account of the small veins. But, since Holt and Alan Brown, at the Babies' Hospital in New York, found that it could be given to infants with ease and safety in the veins of the scalp, and further, that the usual dilution was unnecessary, its employment in children is now on the same footing with its use in adults.

Of the startling results following the use of salvarsan no one need be reminded. Neo-salvarsan, while somewhat less active than salvarsan, is much simpler to use, and in correspondingly larger doses is very efficient.

If we remember that salvarsan destroys the spirochetes and their symptoms, while mercury fortifies the body tissues against the products

of spirochetal activity, and affects the spirochetes indirectly, we will see the logic of combining the two treatments. Starting with an injection of salvarsan, or neo-salvarsan, we rapidly destroy the spirochetes and clear up the symptoms of the disease, and carrying the treatment along with mercury we build up the resistance on the body side, placing the disease, as it were, between two fires. This has been found the most efficient and by far the speediest method of treatment. The mercury is used constantly as formerly, while the salvarsan is repeated at varying intervals by different men, the injection ranging from every few days to a month or so and the dose in infants from .05 of a grm. to .2 or .3 grm., according to age. The treatment is checked up by the frequent employment of the Wasserman reaction.

In conclusion, I wish to report a typical case of hereditary syphilis. C. M., two months old, weight 8 pounds, in very bad condition. The mother had never had symptoms of syphilis. By her former husband she had six healthy children. Following the marriage with her present confessedly syphilitic husband, there was first a miscarriage at four months, then twins, one born dead, then finally C. M. was born, a seven-pound healthy baby. When six weeks old, he developed "snuffles." This grew rapidly worse so that he could only breathe with his mouth open. Sores appeared upon his body, and his general condition declined rapidly. He was taken to a throat specialist when nine weeks old, at which time I saw him in consultation. He weighed eight pounds, was thin and anemic. His nose was stopped up and he struggled for breath with his mouth wide open. There were deep fissures in the lips and crying kept these cracked open so that the whole mouth was literally a ring of blood. Sores were on the face, lower abdomen, scrotum and between the toes. He truly was a pitiful sight. The mother's milk had failed and he was on condensed milk 1:16. His chances for recovery seemed very slim. It was felt that his was preëminently a case for a swiftly acting drug. .05 of a gm. of neo-salvarsan was given in the posterior temporal vein on the right side of the head. His improvement began within twenty-four hours. In five days all the skin lesions were well. The fissures in the lips took a few days longer to entirely heal, by which time he was able to breathe easily with his mouth closed. He gained a pound in the week following the injection, was comfortable and slept well, and, as the mother said, "seemed like a new baby." He has since been treated with mercury with steady improvement. It was felt in this case that by employing the combined treatment much time was gained, and probably the baby's life saved.

FILARIAL ELEPHANTIASIS IN NORTH CAROLINA.

JAMES M. NORTHINGTON, M.D., BOARDMAN, N. C.

Elephantiasis, as its name would imply, is more properly considered as a symptom complex, than as a distinct pathologic entity. It was known to Avicenna and Rhazes in the tenth centutry and from the fact of its being described in their writings has been given the name Elephantiasis Arabum. In the early years of the 18th century the medical officers of the French forces invading Egypt encountered many cases, and gave the results of their observations wide publicity.

The genus Filaria was discovered by Muller in 1787, but it was not until nearly 100 years later that its action as a causative agent in conditions characterized by lymph stasis was established.

It is primarily a disease of tropical or sub-tropical countries; but in this age of travel may be encountered amost anywhere.

The Filaria Bancrofti is now generally recognized as the species of the Filaria Sanguinis Hominis giving rise to Elephantiasis.

The disease is, as mentioned by Royster in a recent paper, rare in this State. Dr. E. J. Wood reports in answer to a query, "I cannot give you the exact number of cases; but I consider it comparatively common in this section." He also mentions that he has observed it frequently among Jamaican and Haytian seamen. My own case is that of a mulatto, who lived for two years in Brunswick County, near Wilmington.

History: W. L., Mulatto, 27, single. Seen August 27, 1912. Examination T—103—P—100. General examination otherwise negative. Right leg red and tense halfway to knee. Right inguinal glands tender. Both legs enlarged markedly. History of chill an hour before.

Past History: Typhoid, lasting six weeks in 19th year. Nine years ago had chills every second day off and on for a year. One or two in almost every summer month since then. Less frequently in winter. At 17 right ankle began to swell and had kernel in groin. Swelling would subside and recur at intervals of month or two, lasting one day to a week for a year, when right leg began to swell in day, and subside at night. Two years after first appearance, left ankle began to swell, and followed more rapid but similar course to that in the right. From beginning each fresh onset of symptoms would be ushered in with chill and fever lasting two to five days. Never passed milky urine. From third to the fifteenth year lived near Eastman, in central Georgia, then moved to Brunswick County, N. C., where he lived two years; after first year in Brunswick symptoms developed. Apparently no association with a victim of the disease. Sexual desire and capacity are supposed by patient to be excessive.

Subsequent Course.—Symptoms gradually subsided and after four days was able to be up and about. There was no repetition of the chill. He was given quinine and iron, although no malarial plasmodia were reported by my asso-

ciate, Dr. H. F. Munt, who had direct charge of the case. We were unable at this time to collect night blood for examination for filarial larvæ, and patient dropped from sight.

On the afternoon of August 24, 1913, Dr. Munt was called to see him, and found him with a gunshot wound of the lower abdomen. There was an irregular opening in the hypogastric region more than an inch in diameter, its center two inches above the root of the penis, and a half inch to the left of the middle line. This opening was probed gently with a sterile finger and a few fragments of the pubic bone and clothing removed, after which a dressing was applied and the patient taken in a wagon twelve miles over a rough road in order to catch the first train to hospital. Patient was in the operating room from 1:30 to 2:30 a. m., August 25th. Fragments of bone and clothing, the tissues which were apparently devitalized, and 8 inches of intestine were removed, and tube placed in bladder, which had been opened by the shot. Patient stood operation well, pulse never going to 150, had fairly good night and rallied promptly. Temperature ranged from 100 to 102 and pulse from 100 to 120 for 6 days, when temperature suddenly mounted to 104 without evident cause, pulse not going above 120. This subsided to 100 in 12 hours. Then followed an irregular decline, sometimes being subnormal, and never going more than a small fraction of a degree above 101, until the 51st day after operation, when temperature mounted gradually in 30 hours to 104, pulse going to 160, and patient complained of severe pain in abdomen. As well as can be ascertained from the chart, this was due to constipation, as it is noted that a SS enema and Magnesium Sulphate were given, and the following night the patient slept well. Temperature reached normal three days later by gradual decline. With minor exceptions favorable progress was made, and after having the fistulous opening in the anterior bladder wall closed on February 2d, patient was discharged on March 3d of this year.

While lying in bed, swelling in legs rapidly disappeared; according to the patient's statement, in 10 days his legs were "nothing but skin and bones." I saw him about 30 days after his admission to the hospital and at that time, except for roughness and pigmentation of the skin, I would not have suspected that there had ever been anything unusual about the parts. Since returning to his usual mode of life, standing on his feet most of the day, there has been a gradual return of the swelling, but no acute symptoms have presented themselves. At present his legs are, as nearly as he and I can estimate the same size as two years ago:

Circumferences—Foot: Right, 12″; left, 11½″. Mid. leg: Right, 23″; left, 22″; Knee: Right, 20″; left, 18½″. Mid. thigh: Right, 20″; left, 19″. Chest, 33″.

In the last few months blood from the ear, centrifugalized specimens of urine, and blood taken from the legs, in which, of course, there was a great excess of liquid element, have been examined repeatedly and painstakingly, but no filarial larvæ have been found.

The cause of elephantiasis may be said to be anything giving rise to obstruction of the return flow of blood or lymph from a part. For instance, disease and enucleation of inguinal glands, obstruction produced by various tumors, phlegmasia alba dolens, and in cases reported by

Tedenat and Martin, by cancer of the rectum, breast and uterus. Daniel reports a case of primary tuberculous elephantiasis of the vulva. Another followed removal of the left breast (Vanderveer). Unna contends that almost all the sporadic cases represent the residual of streptogenes inflammations, the persistent recurrent attacks bringing on a doughy, soft edema, which later hardened with some round-celled, infiltration, and scartissue formation. It is largely a disease of early adults and middle life, and males are affected in the proportion of three to one. The darker races suffer most, whether because of their unsanitary surroundings or not may be a question.

The changes are chiefly in the subcutaneous tissues, and, at least in the sporadic cases, due to repeated erysipelatous-like attacks, consist principally of hypertrophic connective tissue. The integument, too, is usually markedly and irregularly thickened and pigmented, and the papillæ enlarged. Shattuck has undertaken to epitomize the pathology by saying that "the essential characteristics of typical acquired elephantiasis are lymphangiectasis, hyperplasia of connective tissue, and chronic edema." He says further that inflammation when present may be acute or chronic, and is generally traceable to bacterial infection.

Filarial elephantiasis is almost invariably preceded by numerous attacks of elephantoid fever, each ushered in with a chill, usually lasting longer than one of malarial origin, and having all of a severe chill's concomitants, headache, backache, and ofttimes delirium. The temperature does not descend to the normal with the profuse sweating which follows. Coincident with the symptoms there is an erysipelatous or pseudo-erysipelatous inflammation of the parts, usually an ankle, or ankle and leg, with pain, heat, redness and edema, and sometimes a discharge of a clear or milky fluid. In the large majority of instances these local symptoms occur without any obvious local cause. The symptoms gradually abate, the general in advance of the local, and in a few days or weeks the only remaining evidence is a slight, persistent enlargement of the part. The period of quiescence varies from weeks to months, or even years, and the attacks vary greatly in severity. The rapidity of enlargement is roughly directly proportionate to the severity and length of the febrile attacks. The tendency is to grow steadily, but very slowly, worse, the skin becoming rough and warty, the normal folds becoming exaggerated (attachments of unyielding fasciæ), and the parts eventually reaching enormous proportions.

In the scrotal, or genital form, there is said to occur a great deal of pain, so much so that, according to Dieulafoy, we should always think of filariasis in any abnormal case of renal colic, which is complicated by early and pronounced congestion of the testes.

While it is not strictly within the province of this paper, it may not be inappropriate to call attention to a very scholarly report of a carefully worked out case of pernicious filarial lymphangitis by Martinez, in the Journal of the A. M. A., dated May 23. Patient had symptoms simulating bubonic plague, and died within 36 hours.

The diagnostic clinical features are the recurrent, erysipelas-like attacks, with enlargement and other obvious symptoms, thickening, induration, edema, varicosities, and papillary hypertrophy. Finding the filarial larvæ in the blood drawn at night is diagnostic; but the diagnosis must often be made without this aid, the reason being the same as that which obliges us to say a water supply is polluted with typhoid bacilli, even when they cannot be demonstrated in a drop under the microscope, viz., the comparatively small number of organisms in the large amount of diluent. The position that a consideration of the mode of development of the deformity, and its behavior when its victim assumes the recumbent posture for several consecutive days, should aid in differentiating between the filarial and the non-filarial forms of the disease, appears to the author to be a tenable one. In studying filarial elephantiasis, we are constantly encountering the terms, lymphedema and lymphangiectasis: and in those in which there is an obvious inflammatory cause, we see mention of hypertrophic connective tissue. The behavior of my own case, when put to bed for an entirely different trouble, illustrates the former state of affairs; while the latter is exemplified by a case reported by Winthrop as follows:

Mrs. N.—White, age 48, widow, native and resident of Alabama. No family history of tuberculosis, neoplasm, or elephantiasis. Had measles, pertussis and varicella as a child. At age of 15 had a mild attack of erysipelas of left leg, which lasted a week or ten days and gave no further trouble. Menstruation began at 15 and has always been normal. She is the mother of five children, the oldest now 25, the youngest 15. A healthy, active woman until onset of present condition. Following the birth of her second child, 20 years ago, she developed child-bed fever, and a few days later a milk leg of the right limb. A painful red swelling appeared in the right groin, and the right ankle became much swollen and edematous, but showed no signs of local inflammation. The swelling above the ankle gradually extended to above the middle of the leg, but disappeared, in great part, when the patient remained in bed or kept the leg elevated. Occasionally she suffered intense pain in the leg, usually accompanied by an erysipelatous-like inflammation with chills and fever. The skin exuded a milk-like fluid, which was especially profuse if the skin was bruised or broken, as frequently occurred. About ten years ago she noted that the leg was becoming gradually harder, and the skin thicker, and nodulated. The swelling no longer decreased when she was in bed or elevated the limb. This hardening of the tissues and thickening of the skin has slowly increased and extended toward the knee. * * * The blood shows no filariæ, after repeated examination, and the cellular elements and hemoglobin and urine are normal.

A condition classed by Behan under the name "Congenital Elephantoid Dystrophy," might suggest elephantiasis; but this affects the whole of one side of the body, and gives the history of having been present to some extent from birth.

Stelwagon says positively that the disease is neither contagious nor hereditary. However, the opinion has been held for many years that it is communicable through mosquitoes. Dieulafoy says that the pathogenic mosquito is the culex ciliaris; and that the anopheles, which transmits malaria, does not transmit filariasis; Stiles that the larvæ occur in a number of mosquitoes, including anopheles, culex and panoplites. It seems wise to carefully avoid exposing one's self to the bite of a mosquito which has sucked the blood of a victim of elephantiasis, and better, where possible, to keep the insects from coming into contact with the patient.

Rossiter, following the suggestion of Du Broglio, used 30-drop doses of tincture ferric chlorid t. i. d. with most gratifying results in a number of cases. He concludes that the drug has a marked effect on the elephantoid process, decreasing the size of the affected part and restoring functions to an even greater degree.

Many ingenious operations have been devised and performed with more or less success. Rosanow used a combination of the Lanz and the Oppel methods for diverting the course of the lymph, securing anastomosis between the superficial and deep lymphatics by first cutting diamond shaped patches of skin from the thigh and calf, the areas denuded being longer in their vertical than in their horizontal diameters. The subcutaneous tissue and aponeurosis were then cut across in the short diameter of the diamond, then each flap cut down one side so as to make two triangles, which were pressed into spaces between the muscle prepared by a blunt dissection, and sutured. The skin was closed in long diameter of the diamond to make pressure. The results surpassed all anticipation.

Lanz secured excellent results by incising down to femur: drilling into the bone at lower, middle and upper thirds; cutting strips of fascia lata, and working them into the holes. He also made holes in the fascia lata for drainage. Relief was prompt and permanent.

Kondoleon removed strips of fascia lata in six cases with encouraging results. This operation is reported in detail in an article by Dr. H. A. Royster, in the Journal of A. M. A., of May 30th, he having successfully performed it in the only case of elephantiasis reported in North Carolina prior to this one.

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DISCUSSION.

Dr. E. J. Wood, Wilmington: Filarial elephantiasis is not such a rare disease as would appear from the report because in this section we are not given to reporting all the unusual things we see. I am confident that there are a large number of conditions existing in the southeastern part of this State that have not been reported. I know of no section where there are such favorable conditions for clinical experience in tropical medicine as in this State. I think this is a notable paper, because I think you will find in the next few years this will not be such a rare disease. I found certainly four or five cases in the city hospital in Wilmington. It never occurred to me, however, that elephantiasis was an unusual condition. The thing that is of special importance is that it is a negro disease, and like so many others, we are never able to tell when it will become a white disease.

Another point of importance is the diagonis. It is important for you to remember that the epidermis is tremendously thickened and very soon ulcerates. After you have seen it once you will never mistake it. I am sure that if we take a record a year from now a large number of you gentlemen would be able to say that you have seen the disease.

Dr. J. M. Northington, Boardman: I would like to say that we did not find filaria in this case. We made the examinations, as we do regularly. The blood collected from the leg was very thin, forming no rou-

beux even when attempts were made to make thick smears, which shows how much the blood is diluted. I am positive we can find the larvæ when the blood is centrifugalized after being defibrinated.

CONTROL OF COMMUNICABLE DISEASES.

William M. Jones, M.D., Greensboro, N. C.

First, let us dispense with the terms "Infectious" and "Contagious," as applied to pathological conditions, for today they do not convey the idea of separate and distinct means of contracting diseases. Consider for only a moment the history of medicine in general, and preventive medicine in particular, and you will see that whatever cause was least understood was clouded in the greatest mystery, and, for the same reason, the most difficult theories were advanced, but, as soon as it was fully understood, how simple it has always appeared. There is no reason for holding to antiquated expressions today, when more modern terms will convey a clearer meaning. Such a classification as "Communicable" and "Non-Communicable" meets every requirement and fulfills every condition without confusion or ambiguity.

One of the startling facts in medicine of today is that epidemiology is simplicity. The greater our ignorance as to the real cause of a disease the more complicated our theories. So far as legislation is concerned, we have enough and to spare. You cannot control diseases by legislation any more than you can profanity and immorality. In order to control a communicable disease—and all communicable diseases, even the class of non-communicable diseases, are endemic during the course of a year, and one or more subdivisions of each may at any time become epidemic—certain very necessary and essential circumstances and conditions must be available ere effective scientific control can be instituted. We must know that there is disease, its definite location, and the nature of the disease. These essentials can only be obtained by the epidemologist from the physicians. The physicians of the State are the advance guards in the fight for disease control. This information, so necessary and so absolutely essential, must be at once conveyed by the physicians to the proper authority. The physician who will persistently neglect to do so small a duty is guilty of criminal negligence, and should be indicted for it. The general public is fully awake to the importance, and if proper notification is not made, and harm in the way of an epidemic or a death results, they are surely going to find it out, and the physician who has failed to report is going to pay dear for his negligence. This is not said in any manner of criticism of the profession in general, for they do report and report promptly, but some are

negligent, and one or more such men in a community can offset all the good that has been accomplished by the majority who have been careful and prompt as to their morbidity reports.

These morbidity reports are so very essential that without them all prevention is simply a stab in the dark, and you know that does not hit once in a hundred times, and when it does the part struck is not vital.

It is not necessary that you feel absolutely certain that you have a communicable disease of a definite nature before you are to report, for the law says, "A suspicion." We all recognize the fact that oftentimes it is days, sometimes never, that a positive diagnosis of a certain case is made. Then if the final outcome does or does not correspond with the suspicion, no harm has been done. This is the first essential and it rests upon the general profession for its accuracy. When this has been done, the disease, in so far as the community is concerned, is in the hands of the epidemologist, and it is up to him to handle it.

The science of epidemology is an applied science. The comparatively new is going forward by leaps and bounds, yet it is not different from other reforms and advances, in that it has to contend with, as others have had and do have to contend with, the "Ghost of Tradition." This has not only retarded advancement along all lines of medical science, but has been a constant and persistent handicap to science in every line of endeavor. Today it stands as a gaunt and ghastly monster, as an all but impregnable barrier in the very pathway of Preventive Medicine. It is seen under many an alias in our laws, many of which are only slightly altered copies of those given the ancient Israelites by Moses, the great law giver.

The term "Quarantine," derived from the Italian or Latin, denotes a period of forty days. Biblical history, and also the great historian, Josephus, tells us that this was the period of exclusion for unclean cases from the camp or city. Today this is the usual length of time designated for quarantine. Then many of our present day methods of terminal disinfection are in no way to be termed an advance over those designated by Moses for cases of leprosy and syphilis.

Terminal disinfection, as is generally applied, does more harm than good, for it gives a false idea of security. Disinfectants have their use and are indispensable under certain circumstances. Deodorants are absolutely useless and are harmful in that they simply mask the real condition.

Simply because a certain theory has been believed for years, there is no reason for defending it on account of its age and infirmities. We have all seen the baneful effects of the night air theory and malaria.

This theory has no firmer foundation than that of a coincidence, viz., that night air and the mosquito occur simultaneously. The night air theory was easier to support, for while it could not be proven, it was equally as irrefutable. This, in the light of our present knowledge, is no longer tenable, and today almost everyone admits that the mosquito is the intermediary host from man to man.

So, to control the communicable disease, malaria, do not attack the disease *per se,* nor the individual, nor yet the mosquito as an insect, but destroy the generations yet unborn by destroying the breeding places. The destruction of all breeding places of mosquitoes is easier said than done, but it is the solution of the question of malaria control.

The same plans are applicable to yellow fever, which is also carried by a mosquito; however, not the same species that carry malaria, and, consequently, its life and habits are different. This is not a question in our State, for we do not have the stegomyia mosquito.

Malaria and yellow fever are fully understood as to the way and manner of transmission, and that they can be exterminated by the proper application of scientific measures has been clearly proven.

There are three methods of exterminating the breeding places: Drainage, coal oil application, and small fish. Drain when possible. If the place is small and you can not drain, use coal oil. If large, and you are unable to drain, trim the banks so the small fish can get to the edges, and if necessary stock with minnows.

There are more deaths due to malaria than are designated in mortality reports, and in certain sections it produces untold ravages.

Smallpox.—It would appear as almost superfluous to mention this disease to a body like this, yet the fact nevertheless remains that year after year we are confronted by this most easily-controlled of all communicable diseases. So far as we are aware, vaccination with cowpox virus is the only way it can be controlled, and we do know that it can be stopped completely. Quarantine is expensive and inefficient, yet I am not ready to accept the plan of no quarantine, for I do not think we are ready for it, certainly not as a hard and fixed rule. The majority of our cities have made vaccination necessary before entrance into the schools, and this is a great step forward. The average county is not yet ready to take such a step as compulsory vaccination for the schools, but the time is not far off when it can and will do so; for, with compulsory attendance and the appearance of smallpox in a school, it will be an absolute necessity.

An educational propaganda is helping to a great extent in getting the children in rural schools vaccinated.

Typhoid Fever.—The mortality from this disease is so very great

when compared to that of Europe that it may well be called the American disease. This mortality in America is, as Osler says, "disgracefully high." Most cities have so reduced their death rate from typhoid that it is frequently spoken of as a rural disease. The erroneous idea that polluted water is the sole cause must be eradicated, for it is doing serious damage in causing the general public to overlook the real modes of transmission. One mode is by milk, and here the polluted water may be the agent, and the milk acting as the culture media. The real carriers are flies and the fingers. The flies go and crawl over the bowel discharges from the sick patient until they are satisfied with that diet for a time at least, and they then journey to the nearest milk pail to take a foot-bath and get a second course; from here they go to the kitchen or dining-room, and oftentimes leaving the milk pail off their route they come direct to the lips and over the face of some innocent sleeper.

We have only to consider the pathology of typhoid for a moment to form a correct idea of the way and manner the system expels the infection, and this by the alvine discharges. It is a well-recognized fact that these discharges may be a source of infection for a very varying period after the case is convalescent. These human incubators or carriers, as they are called, may harbor the deadly germs for months and continue to discharge them, thereby being a source of great danger.

Every case of typhoid should be reported and placarded. It is more necessary to have this done in the case of typhoid fever than in smallpox. The public knows how to protect itself from smallpox, and not only does not know how to protect itself from typhoid, but does not know that it is a communicable disease.

In 1911 in the registration area the typhoid fever mortality was 21.0 per 100,000 and smallpox .2 per 100,000, or in proportion of 105 deaths from typhoid to one from smallpox. If it is worth anything to placard for smallpox, then why not placard for typhoid fever?

Every family wherein is a case of typhoid should be instructed how to care for the case. Simply to say to them that the discharges are dangerous and should be disinfected not only does no good, but actual harm, for they will disinfect as they have been told and will have a second case to develop. When this condition is noticed to be a frequent occurrence, then the public is going to lose faith, and to reëstablish this faith, or truth, will be much more difficult than to get it at first. Most if not all instruction given is entirely inadequate and does not do the work, but gives only a false idea of security.

The majority of cases wherein there is a repetition are due to either careless handling of the discharges, as they leave the patient, or to flies carrying it from the original source, or from the discharges of the

patient. How then can these things be overcome? By carefully impressing upon the nurse the very great necessity of extreme personal care and cleanliness, and have her to fully understand the danger to which she is liable if she does not exert more than ordinary vigilance. The fly should first be screened from the kitchen and bed-room. If you do not screen him from the kitchen, for goodness sake do so from the privy. Do not let him have access to first one and then the other, just as he chooses. When this has been done, go for his breeding places. Regularly, once a week, have the stables cleaned, remove all garbage and decaying vegetable matter from around the house, etc. Know that your milk and water supply are pure.

How are we to render the discharges innocuous? Place the contents in a vessel, preferably a crock with a top to it, then pour enough boiling water on to cover the discharge and add one cup of lump lime, cover and allow to stand for three hours. This is the simplest and best method.

Diphtheria.—Here the infectious material is expelled from the nose and throat of the individual affected with the disease. This disease, like typhoid fever, has its carriers. In typhoid some cases are caused by carriers, while in diphtheria the very great majority of cases are so caused. It is impossible to isolate the carriers because not every one can be examined, and then every one who has the specific germ in his throat may have an almost inert species, so it is manifestly impossible to entirely eradicate this disease.

The hope of control lies in the early diagnosis and care of known cases, the prompt administration of antitoxin, the isolation of the case, and the proper sterilization of everything that comes in direct contact with it. There should be particular care as to all food containers, as cups, spoons, plates, etc. These should be thoroughly boiled in a vessel separate from the other dishes of the family. Then all discharges from the nose and throat should be received into soft cloths and these immediately destroyed by burning. The attendant should make frequent use of a bichloride or some good antiseptic for cleansing the hands, and should use regularly a mild antiseptic spray in the nose and throat.

Whooping Cough.—The same may be said of this as of diphtheria, the infectious material being expelled from the air passages during the act of coughing. The etiology has for a long time been obscure, but of late its cause has been demonstrated as due to a bacillus which forms colonies, and these, by mechanical action, excite coughing.

Scarlet Fever and Measles.—The catarrhal or invasion stage is the most dangerous, and when pathognomonic evidence of the disease is present the greatest danger is past. While we do not know the specific cause of scarlet fever or measles, we do know something of how they are transmitted.

There is no theory more generally accepted than that of fomites in the spread of disease. This theory is far older than bacteriology.

It has only been a few years since all letters coming from a yellow fever infected district were perforated and fumigated to prevent the spread of yellow fever. This we know today was absolutely useless.

There are today many laws in regard to disinfection that are every whit as useless. This idea has simply been a cloak, and the poor old cloak is fast becoming threadbare and more hideous and dangerous than the condition it is employed to conceal.

The pustule of smallpox certainly is a means of transmission of that disease, and the same has been claimed for the vesicle of chickenpox, but has never been clearly proven. In measles and scarlet fever, with a skin manifestation, extending only to the stage of macule and then drying and scaling, there is nothing to justify the theory that the scales are a source of danger. The desquamation is only an end result of a previous circulatory derangement of the skin. Yet almost every man, woman and child can tell you of one incident after another where fomites or desquamation have been the means of transmission. This, however, has never been proven, or if it has, I have failed to find the proof. The majority of cases attributed to fomites are due to carriers or missed cases.

Here I want to say only a word or so about air-borne diseases, and it is simply this: that the theory is nourished and kept alive by manufacturing concerns selling their products.

The conclusion of today, that will be a reality of the future, is man to man and insect to man transmission of all communicable diseases.

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DISCUSSION.

Dr. J. M. Northington, Boardman: I should like to say something in regard to the quarantine of smallpox. I am heartily of the opinion that we should have a State-wide vaccination law. I had an experience with a woman who was pregnant who was exposed to smallpox, contracted the disease and died. Vaccination would in all likelihood have saved her life and that of her child. As is well known, smallpox is almost invariably fatal to the pregnant woman; and she is the one person who seems to have been overlooked in framing the present laws dealing with the disease. Certainly I overlooked her in my advocacy of these laws.

Quarantine is expensive and inefficient. Vaccination is inexpensive and efficient. The vast majority will not voluntarily submit to vaccina-

tion. Let us make vaccination compulsory. The ignorant suffer. Let us protect them from the consequences of their ignorance.

Dr. W. C. Whitfield, Grifton: We all know that we, as medical men realize the value of vaccination, but sometimes when we look around in our precincts, we very often find some disapproval of vaccination for fear sore arms will give them trouble. We also know that there are men who will not allow their wives and their children to be vaccinated. I plead for these helpless women and children, that they be properly protected against this loathsome and often fatal disease. We ought to have a compulsory law for vaccination, for old and young, white and black, ignorant as well as those who are born in homes of refinement and culture. I certainly think that we should always have compulsory vaccination laws if they can be provided and put into effect.

Dr. Edward J. Wood, of Wilmington: In a recent publication of the *American Journal of Medicine*, there is suggested a plan for painless vaccination. The surgical antiseptic should be inserted and the rupture cured in the most careful manner. With this treatment, the sore arm is a matter of absolute disregard and one that lasts only about forty-eight hours.

Dr. P. R. Hardee, Stem: I do not believe you can disinfect a vaccination vesicle and prevent a sore arm if the patient continues to use the arm; I believe it is using the arm rather than infection that makes bad arms from vaccination.

As to a compulsory vaccination law, you may have such a law enacted, but will it be executed? For the past 120 years the medical profession has been teaching and extolling the value of vaccination against smallpox. Rather than exert ourselves in trying to have a State-wide vaccination law enacted, let us expend our energies in teaching the people the value of inoculation against typhoid fever. In this remedy we have a vaccination that does not produce sore arms but it does produce absolute immunity from typhoid fever. If for the next twelve months we spend some of our energies in teaching the people the value of this later form of vaccination, next year Dr. Rankin will not have so many deaths reported from typhoid fever. The death rate from smallpox in North Carolina is trivial compared with that of typhoid fever.

Dr. J. M. Templeton, Cary: I wish to endorse what my friend Dr. Hardee has said in regard to inoculation against typhoid. I also favor compulsory vaccination against smallpox. In our assault upon the citadel of disease we must recognize the stragetic point and seize it. They tell us that if Napoleon could have captured Hugomont he would probably not have met with the disastrous defeat of Waterloo. So

if we could have compulsory vaccination, we could master smallpox and typhoid.

Then there is the hookworm proposition. If I understand it, while there are other avenues of infection, it is contracted oftenest, perhaps, through the skin, especially of the feet,—ground itch. Now, the most vigorous germ can't get through a good, heavy pair of shoes, so if John D. Rockefeller, instead of giving money to buy thymol, had bought the children shoes, he would have been doing something worth while to prevent this disease.

Dr. T. S. Faucette, Burlington: I want to express most heartily my endorsement of everything that has been said in regard to vaccination against typhoid fever and against smallpox, and to say further that since we have compulsory education, I think we ought to require that each child shall bear a successful scar of vaccination, and that this would immunize a great per cent of the population against smallpox.

Another question of importance is that of preventing tuberculosis. About twenty years ago there was in my town a man who had tuberculosis and worked in a cotton mill as a boss, until within a few days of his death, coughing and spitting on the floor and taking no precautions whatever for the safety of those associated with him. Since his death there have gone from that mill (to my own knowledge) at least thirty persons afflicted with tuberculosis and who have died within the last twenty years, to say nothing of those who are still suffering with the disease.

I think there should be a law enacted and enforced in this State to prevent any and all persons afflicted with tuberculosis from working in any cotton mill.

Should this be done it would not only prevent some hundreds of persons from contracting the disease, but would lengthen the lives of those thus afflicted.

Dr. Jno. A. Ferrell: Two of the diseases mentioned—typhoid fever and hookworm disease—are common and they are preventable by practically the same measures. Their existence and spread are due to our failure to properly dispose of human excrement. Typhoid infection is usually taken in by the mouth whereas the hookworm infection is commonly taken in through the skin. In designing sanitary closets to prevent the spread, that is to stop soil pollution—we have been seeking the ideal closet instead of adopting a practical one. Usually the type advocated has been so complex or so expensive that it has not been generally used. Personally, I believe much progress will have been made if in sandy and clay sections we can get the people to require as a minimum privy the following: (1) A hole three or four feet deep. (2) A box turned

upside down over the hole and dirt banked around its lower edge. (3) A hole for the seat in the bottom of the box to be covered when not in use. (4) Fill up with dirt the used pit and place the box over a new hole every few weeks.

This may not be ideal and it may not be absolutely free from danger, but neither is a railroad train free from danger. It is a practical privy, however, and if put into general use will save many lives from typhoid fever and hookworm disease.

Dr. Jordan: I would like to endorse what Dr. Ferrell has said. I have had some experience more or less with the so-called theoretical sanitary privy, and you can not get them clean. I rather endorse the plan of a hole in the ground with a box over it.

ORAL HYGIENE AS APPLIED TO CHILDREN.

Dr. J. Martin Fleming (Dentist), Raleigh, N. C.

The writer of this paper deems it an honor as well as a pleasure to appear before the State Medical Society and read this humble contribution to so great a scientific organization as yours is.

The paper has been prepared with no special hope of bringing to your attention any new or original idea along the line of oral hygiene, but simply to emphasize in the writer's own way different points in the subject and apply these points especially to the care of the mouths of children, in the hope that in so large a work more men of your profession might become interested, if not in the work itself, at least in the ultimate result of that work. The question of oral hygiene is not a new one; its importance has been known for thousands of years. We know that the Egyptians had their teeth filled and used dentifrices. We also know that some races of the present day, which we, if you please, would term "heathen nations," regularly clean their teeth by rubbing and are aware that better health results from this care. And so you might say that the general knowledge of the care of the teeth, both in the past and in the present, seems almost universal, the general neglect coming only from carelessness.

Only within a much more recent period has the question of oral hygiene, as applied to children, come into the prominence it now has, and even yet it seems to be only in its infancy in the ultimate good which it will accomplish. There are those of us present, especially among the older men, who never heard of the practical side of oral

hygiene until recent years. There are those of us, I, myself, being one, who never heard of a dentist till the age of 12 or 14 years, and a touch of toothache then was the cause of the news reaching him.

But today that period seems almost to belong to a forgotten past. The mouths of the children are more closely watched than the eyes or ears. It is known that contagion is spread more rapidly among school children with decayed teeth and unhygienic mouths than it is among those with clean mouths—so much more rapidly, in fact, that those with clean mouths seem almost immune from the usual contagious diseases, measles, whooping cough and more especially the more dreaded disease of scarlet fever, and from diphtheria and other diseases of the throat and lungs. It has also been found that unhealthy mouths are responsible for more abscences from school than all other causes put together.

A grown-up person is incapacitated for any and all work by a gnawing, troublesome toothache, and if it is so of the adult, how much more of the growing boy or girl!

How can they possibly accomplish anything under such conditions?

With mouths in such a state of uncleanliness, it has been said by eminent authority, there is even among children a demand for a stimulant, either coffee or tea, and one eminent authority, Dr. C. N. Johnson, a leading dentist of Chicago, has gone so far as to state that this same demand for a stimulant leads, in older boys at least, to open drinking and drunkenness. Nor is that a far cry—older men drink to relieve pain—why not boys? They are the greatest imitators in the world. But to come back to the mouth, a single abscessed deciduous tooth leads too often to general infection of the whole system. In my own practice it is my pleasure to have charge of the mouths of the children of the Methodist Orphanage located here, and case after case has been seen in the mouths of the little fellows as they come here, neglected mouths of neglected children, but that condition is looked into immediately on their arrival and it is a pleasure to watch their development. Of course this development is not all due to mouth hygiene, but none of you will gainsay that it has its part, and a large part in it.

Decayed places in teeth also form an ideal culture place for microorganisms and there is no question whatever that there has been tuberculosis infection from this source. In the public schools of Chicago there was, at one time, an epidemic of scarlet fever. It was noticed that immediately following the return of the quarantined child new cases at once developed among their schoolmates. It occurred to Dr. W. A. Evans, the efficient health commissioner, that a child

might possibly convey the germs in the tonsils and decayed teeth indefinitely. His first order was that no child who had suffered with scarlet fever should return to school till all decayed teeth were properly filled and the mouth and throat made absolutely hygienic. Immediately there was no further spread of scarlet fever in those schools.

What has been found true there has been found true elsewhere, and the best thought today, in the dental profession, is turned towards a preventive practice rather than a curative one. There are dentists in North Carolina who have regular classes of small children who visit their offices regularly, so many times each month, and the whole endeavor is to present a child to maturity whose teeth are perfect because of an absolutely clean mouth. It is no "love's labor lost." It aims at the building of the very foundation of health. These instances of infection and contagion are the merest hint of what might be said on the relationship between defective teeth and community health.

Nor is the physical health only benefited by the proper care of the oral cavity. Actual scholarship tests have been made, and the most backward children of certain grades, have, upon examination, been found to be suffering from bad mouth conditions. These children, without their knowledge of the reasons therefor, have been put in classes by themselves, their mouths put into perfect condition, and have been changed from backward students to students in the first rank of scholarship. This scholarship test has been applied time and again, and always with the same result.

Diet, too, plays an important part in the health of the child's mouth, so much so, that you can almost examine the school lunches of children and state positively what condition you will find in the mouth. Too little interest is shown by parents along this line. Too often a big green cucumber pickle takes the place of bread and meat, and too often it is a nickel instead of a lunch that is given, and the nickel swallowed would cause less derangement of the stomach and general health than the trash it buys. A child cannot grow a good set of teeth without nutritive food, no matter how clean its mouth.

You cannot gather figs of thistles.

Sir William Osler, the famous physician, once said that bad teeth caused more harm to the human race than alcohol. That is a broad statement to make to you gentlemen who see so much of the harm that comes from alcohol, but it is in no wise an exaggeration and it comes from high authority in your own profession.

The mouth is the gateway to the whole system and it is said that more than 80 per cent of our diseases come into the system by the mouth. Would you ask for greater reason than this as to why it

should be kept clean? And not only is the physical and mental side of a child's training warped by bad mouth conditions, but even the moral side of his life is influenced, and to such an extent that the broad statement can be made that moral degenerates invariably have poor teeth. Mr. Chas. D. Hilles, formerly private secretary to President Taft, but now President of the New York Juvenile Asylum, has only recently given out a statement in which he says that by patching up the teeth of delinquent boys he is able to send them back to their homes 90 per cent good instead of 90 per cent bad.

Mr. Hilles says that a generally accepted theory is that a bad boy is an ill boy, and, in their examination of boys sent there, all being under fifteen years of age, it has been found that 65 per cent were anemic, and when they traced this condition to its source they were forced to the conclusion that it arose from bad conditions of the teeth and mouth. This is authority from a high source and comes not from the research of a dentist alone, but from that of men of both professions. If, then, defective teeth have so great an influence on the physical, mental and moral growth of a child it may be well for us to consider briefly the prevalence of these bad mouth conditions. Few people have any idea of the percentage of children growing up with unhygienic mouths. Statistics without number can be quoted as to the conditions in northern and western schools, but some nearer home might be of greater interest. Some years ago the mouths of the children in the public schools of Raleigh were examined by the members of the Local Dental Society, and your surprise will be great when you learn that almost 95 per cent had defective teeth. And this does not mean an examination of the mouths of children from the poorer homes. Here, all children, from the mansion to the humblest home, attend the public schools. We were examining the conditions of a community, not of a class. Some of the worst mouths came from the best homes and vice versa. Copies of these examinations and charts of the mouths were sent to each and every parent, and many expressed surprise that the conditions were such as the charts showed. Many at once had their mouths attended to, while many others paid no attention to the matter and the child suffers. The schools of this city now employ a physician whose duty it is to find defects, both of the general health and of the eyes, ears, nose, throat and teeth. The day is not far distant when a child who is suffering from any defect of these organs will not be allowed to enter a public school. Vaccination is already enforced and that stops only one disease. The other will certainly come as its importance is better understood. Nor is this awakening only to be confined to the city schools. Practical oral hygiene is being talked and

taught in almost every school in the farthest corners of the State. The ultimate solution of these questions does not lie with the dentist alone, though it lies mainly with him. The physician is as anxious to practice preventive medicine as the dentist to practice preventive decay. Both are honestly laboring along the line of the greatest good to the greatest number for the greatest possible length of time.

The most perplexing phase of the work to the dentist lies in the fact that the children are not brought to him till it is too late to do much towards saving the first teeth. But dentists are preaching and teaching the importance of it to every parent with whom they come in contact. Even then the great majority is not reached.

With the active coöperation of the Medical Society this could be remedied. The physician goes into a number of homes in which dentistry is not known. The two professions have worked in harmony in the past. Each has obtained help of the other.

The dental profession is proud of any discoveries we have made that have been of help to the parent profession. We are proud that through the research of one of our members "pain has been steeped in the waters of forgetfulness." We are also grateful for the many helps we have received from your profession. We have worked side by side, but never was the need of coöperative work more marked than it is along the line of prevention of disease as regards the cleanliness of the mouths of children.

It is said that Dr. Chas. H. Mayo, the eminent surgeon of Rochester, Minn., in a paper read before a dental society in the city of Chicago, more than a year ago, said that it was evident that the next great step along the line of preventive medicine should come from the dental profession. If we can come to full fruition of the work of Oral Hygiene we will have already accomplished this step, beyond the dreams of Dr. Mayo.

The National Dental Association has a separate and distinct department given over to scientific research which is looking into and studying out new methods, new remedies, new preventives, new helps of every description, not alone along the line of oral hygiene, but along every line that pertains to the science of dentistry. The pride we feel at our past accomplishments along the line of general health gives place rather to a feeling of expectful hopefulness of the future and yet we earnestly ask your aid in preaching and teaching along the line of oral hygiene.

A clean mouth means good health, and good health among children means a better race of men and women, not to mention the betterment of a community, of a state, and of a nation.

CANCER FROM THE STANDPOINT OF THE LAYMAN.

W. F. Cole, M.D., Greensboro, N. C.

Cancer, one of the most dreaded diseases to which we are heir, is on the increase, not only in this country but also in the other countries of the world.

Statistics show that about 75,000 die annually in the United States of cancer, and that the death rate in man above forty is about equivalent to that of tuberculosis.

When the mortality of both tuberculosis and cancer are compared against the number of infections of each it will be seen that the death rate in cancer is far in excess of that in tuberculosis.

These two diseases have been the great dread of our people for many years, and it has been only a short time since an infection of either was considered incurable.

They resemble each other in many respects. Both begin as a local lesion, and from this lesion are disseminated to other parts of the body, through either the blood stream or the lymphatic vessels.

The ultimate result of the lesion, if not disturbed or healed, is sloughing and ulceration.

When the infecting agent is carried through the lymphatic vessels or blood stream and deposited elsewhere in the body, a new lesion is started which is identical with the original lesion, starting, as we say, a new cancer or a new tuberculous condition.

A small per cent of the sloughing or ulcerating lesions of both cancer and tuberculosis include within them blood vessels of varying sizes. The walls of these vessels become ulcerated through, and the contents of the lesion is poured directly into the blood stream, through which it is carried to all parts of the body, especially to the abdominal organs, producing what is known in tuberculosis as general miliary tuberculosis, and in cancer as carcinomatosis, both of which resemble each other so closely that the untrained eye may easily fail to recognize the true condition.

When the infecting agent is carried from a local area to other parts of the body through either the lymphatic vessels or the blood stream the lesion is said to metasticise, and the curability of cancer depends upon this fact.

When we learned that tuberculosis is curable or may be arrested permanently, we also realized the importance of teaching the laymen how to protect themselves, and when to consult the physician.

The teaching has been thorough, and the reward may be seen by the great number of patients who have been restored to health and home.

The layman knows these facts about tuberculosis, but the great majority of them are ignorant of the fact that surgery in time cures them of cancer.

Cancer is more common in middle and later life, but it also attacks the young and old, the rich and poor alike.

We do not know the cause of cancer. The two oldest and probably the most popular theories are: First: That it is a parasitic disease; Second: That it is caused by the misplacement of embryonic tissue. According to the latter theory, during the development of an individual, a piece of tissue that was intended for some special function is caught and held in a foreign field. This tissue later, through some irritant, takes on active growth, and a cancer is the result.

Cancer is not an hereditary disease, nor is it a blood disease. On the other hand, its origin is a local lesion, which may or may not be surrounded by a capsule.

It is composed of myriads of small cells, in the centre of each of which is a highly differentiated portion known as the nucleus. This nucleus contains the vital elements of the cancer.

The growth of a cancer is brought about by what is known as cellular division. Each separate little cell will divide into two new cells, and each two new cells will divide into other new cells, and so on indefinitely until we have such a rapid growth that nature is unable to hold it in check. It begins now to invade the surrounding tissues, by sending out small branches in every direction, somewhat as a potato is squeezed through a fine sieve. When the cancer is in this stage the hope of cure diminishes rapidly as days and months go by, if not interfered with by the surgeon.

The great danger in cancer is not the local damage that is done, but the tendency of the little cancer cells to wander into the lymph spaces, and to be carried by the lymph to other parts of the body, constitutes the real danger. It is the metastases that kill.

The whole surface of the body is covered with a fine network of lymphatic vessels, which join together to form the lymphatic ducts. These ducts pass through the lymphatic glands, which filter the lymph before it is permitted to enter the blood. Each cancer tumor is covered with a fine net work of these vessels.

If the tumor is thoroughly encapsulated and the little cancer cells cannot get into the lymph stream and be carried to other parts of the body, it is spoken of as a precancerous tumor. Operation during this stage cures 100 per cent.

If the cancer is farther advanced and the little cancer cells have already been swept to other parts of the body, then the possibilities of cure range between zero and 60 per cent, the highest depending on whether or not the infected glands can be removed.

Upon whether or not the layman can appreciate these two facts and come to the surgeon early depends the solution of the cancer problem at the present.

Precancerous lesions, or lesions that are prone to malignancy, may be represented by abnormal growths of the body, such as warts, moles, and lumps under the skin. If these lesions suddenly begin growing or get painful or show signs of irritation the physician or surgeon should be consulted at once, and if necessary the growths should be removed.

Ulcers of the face, lip or tongue, that do not yield to proper treatment in a reasonable time should be removed.

It is of the utmost importance to the patient, when these growths or ulcers are removed, to have them submitted to the pathologist for microscopical diagnosis.

The microscope is more accurate than the unaided eye. Often a seemingly innocent tumor is removed which proves microscopically to be a cancer. Consequently the cancer operation is done. Again we may have a tumor that apparently seems malignant, but on microscopical examination it proves to be benign. In this case only the tumor is removed, saving the patient from the extensive cancer operation.

Cancer of the breast is a very serious disease. From this cause alone there are 6,000 deaths annually in the United States. The reports from the largest clinics in our country show that the percentage of cures ranges between 25 and 35 per cent. This low percentage of cures should not be so, and it is due directly to neglect or lack of knowledge on the part of some one.

In Europe the medical profession through the aid of the press and circulars have so thoroughly impressed the women with the importance of early recognition of cancer of the uterus that the results so far have been marvelous.

If we could only start a similar campaign in our State, not only against cancer of the uterus but also against cancer in general, we would soon reap a rich reward, and would be recognized as leaders in the cancer fight, and the time is not far distant when we shall call the great educator, the press, to our aid.

A casual review of the following cases of cancer of the breast, operated on by the surgeons of this State, will show how badly we are in need of instruction in regard to cancer.

Through the kindness of the surgeons I have collected 150 cases operated on since 1900, a brief report of which I will give.

Not one of these cases was reported to the surgeon during the precancerous stage, or even during the earliest stage of cancer. They came to the surgeon after the cancer had advanced to the stage where he could diagnose it clinically. Consequently the hope of cure ranged between zero and 60 per cent at the highest.

About thirty-five of this number will probably be cured of cancer; and the other 115 will die or have already died of cancer, if they are not taken away by some other disease.

Six of these cases of cancer were so far advanced that the operation was done to relieve pain and not to cure cancer. Twenty-six cases reported to the surgeon, who made a diagnosis of cancer, but they refused operation. Their fate is death.

Had the layman known and come to the surgeon early, instead of 115 cancer graves in our State we would have had only fifteen at most.

This is what has happened under our own eyes, and the question is now, is the medical profession going to allow the laymen to grope around in darkness and ignorance in regard to cancer, or are they going to make it possible for them to receive proper instruction and protection?

We know on good authority that 50 per cent of the lumps in the breasts of women over twenty-five years of age are cancerous when first seen, and that half of these cancers are of the least malignant type with 100 per cent cures when operated early.

Now when the right thinking woman who has a lump in the breast knows these facts, she certainly will not take even chances of having a cancer when early surgery increases her protection to 80 or 100 per cent.

The symptoms of cancer of the breast are very indefinite, and cannot be counted on in every case. The mere presence of a lump in the breast is sufficiently grave to consult the physician or surgeon. In some cases there may be a burning, stinging pain in the breast, retracted nipple, discharge from nipple, ulcerating nipple and an eczematous condition around nipple may be associated with cancer of the breast. Oftentimes we have a history of injury to the breast followed by a cancerous lump. The lump alone may be the only thing present in some.

The treatment of all cancers is early surgery. The X-ray and radium may be used to advantage after the operation. In cases of extensive skin cancer radium is probably better than surgery.

Now in conclusion, Mr. President, we may sum up by saying that

cancer always begins in unhealthy tissue, appearing first in the precancerous stage in which 100 per cent are curable by operation.

If neglected until metastases have taken place then the possibilities of cure depend on whether or not we are able to remove the infected glands.

We know our obligation to the layman and when we have educated him to the stage where he can appreciate the significance of a lesion, and the importance of a correct diagnosis, cancer will have received its death blow.

The future happiness of our race is dependent upon education, for the time of great physical strength is past, and the time of thought is upon us. Those who know shall teach, and those who are ignorant shall learn, and they shall unite for the common protection of humanity.

DISCUSSION.

Dr. J. T. Burrus, High Point: I think this is too important a subject to let such a valuable paper as this pass by undiscussed. In the first place, I want the Society and North Carolina to know that Dr. Cole is doing some really scientific work along this line, and I want to most heartily indorse Dr. Cole's paper, as he has given us a signal that we, as the medical profession of North Carolina, should well recognize and look to. We have in our country today 82,000 people dying every year of cancer. This is an undisputed fact. With a condition carrying such a high mortality, is it not well that the profession of North Carolina should turn with very enthusiastic determination to the consideration of the cancer problem? It was my privilege to have service for a year in a cancer hospital, across the table from a man who is a master of the subject in so far as it is possible for any man to be, and I have been agreeably surprised to see the wonderful results he has been able to obtain. This is the point, if we cure cancer we must operate early, and we must operate thoroughly. There is no subject that more should be said about. For instance, if you hope to cure your cases of cancer of the breast, you must recognize these conditions and operate on them early, and do this operation without squeezing the cancer substance back into the system, because we can inoculate or re-inoculate the subject with the cells of his own production. Now, if the general practitioners of North Carolina wait to refer their breast cancers to the surgeon until there is a mastitis in the axillæ, you had just as well not refer your cases at all. The danger in radium and the danger in the X-ray is that we are first depending upon radium, a thing that we have not and that many of us can never have; and that we depend upon the X-ray. The general practitioner who has an X-ray machine treats the

patient for a while and waits to send him to the surgeon, and that is almost criminal. Let the surgeon have these cancer cases early, and let him do a radical procedure. Then there is no reason in the world why we should not effect a cure. The most important point, as Dr. Cole said, is that we must hope for our cures in the pre-cancer condition.

WINES, SPIRITS AND MALT LIQUORS.

J. T. J. Battle, M.D., Greensboro, N. C.

It will not be the purpose of this brief paper to discuss the above subject from the moral point of view, or to indulge in any sentimental opinions.

As Chairman of the Section on State Medicine, it is my opinion that alcohol occupies a position which very greatly affects the health of the citizens of this State, and directly and indirectly their financial condition.

I purpose to offer some figures derived from the higher class of drinkers. These figures are the result of the medico-actuarial investigation, which occupied five years to complete. They comprise the experience of forty-three of the largest insurance companies in America.

In explanation of the expression, "higher class of drinkers," I will say that by this is meant that these statistics do not give accurately the immense amount of injury alcohol is doing the human race, as insurance companies have always realized that whiskey increases their mortality, and for that reason they declined to insure the spreer, the common drinker, and the immoderate user, so it is only the moderate user, who was insured, on which these figures are based.

In analyzing the report of the Association's investigation it is found that, taking 100 as the normal expectancy, for all ages, those who indulge in occasional excesses show a mortality of 151 per cent, or 51 per cent over the normal. The steady user shows a mortality of 86 per cent above the normal. In these cases cirrhosis of the liver was five times the normal, while diabetes, tuberculosis, pneumonia and suicide were twice the normal. Those who have reformed from intemperance without treatment showed a mortality of 32 per cent above the expectancy, while those who reformed with treatment showed an excess of 35 per cent. In both of the two latter classes the insured were total abstainers from the time of their reformation.

There have been a few companies who have put into separate classes the abstainers and the non-abstainers but moderate users; and the actuarial investigation proves "that the abstainers show a marked supe-

riority to the non-abstainers, throughout the entire working years of life, on every class of policy, and for both sexes, however tested."

These excess death rate figures, which are derived from business corporations, for business purposes, and are acted upon by these companies, admit of no doubt as to their accuracy. They are worked out for financial reasons only. I purpose to say nothing of the many paupers, inmates of county homes and insane asylums, the epileptics and degenerates, which are caused by the use of whiskey.

Knowing the amount of whiskey that is shipped into North Carolina annually, and realizing the excess death rate caused directly and indirectly by it, it does seem that it is the duty of the medical profession, whose determination in this day seems to be really as much to prevent as to cure disease, to use their efforts to put a stop to this drink evil, which is exacting such heavy toll.

THEREFORE, BE IT RESOLVED, That the Medical Society of the State of North Carolina will use its best efforts to discourage the use of alcohol in any form as a beverage.

Resolved, Second, That it is the sense of this Society that any member of the profession who does promiscuous or unnecessary prescribing of whiskey, either to patients or non-patients, is violating one of the principles of our profession, and is deserving of censure.

Resolved, Third, That alcohol as a drug can be eliminated from the pharmacopeia, without in any degree crippling the efficiency of the doctor's armamentarium.

DISCUSSION.

DR. J. W. LONG, Greensboro: In view of the public interest that attaches to the paper giving the resolutions you have just heard read, which are similar to the splendid sentiment expressed by our President in his address of yesterday, I move that this paper in its entirety be given to the daily press, so that the people of North Carolina may know how the profession of North Carolina feel touching the subject of the use of intoxicants.

(This motion was carried unanimously).

DR. S. M. CROWELL, Charlotte: We speak now and then of the bad influence of whiskey, what it is doing for our nation, but *continue* to fill our jails, asylums, county homes, etc., perhaps adopting a set of resolutions explaining our position upon the alcoholic and narcotic drug issues instead of taking *aggressive steps* towards alleviating the proposition in a sane manner as other states are doing by the establishment of State institutions for the care and treatment of whiskey and narcotic drug users—especially the treatment of the poor or indigent class. I observe that a number of States of the Union are thus scientifically

caring for this particular class of their sick instead of attempting to treat them by the old methods of chain gang, penitentiary and old asylum methods. It is certainly just as cheap to maintain such an institution, and far more humane and scientific.

For a number of years I have advocated this method of scientific treatment of inebriates and drug users upon every occasion that I would have an opportunity before our medical societies, and trust to be able to get the matter in the proper form before our next Legislature for consideration.

A PLEA FOR MORE RIGID ASEPSIS IN OBSTETRIC WORK.

A. B. Croom, M.D., Maxton, N. C.

In this day of earnest study and diligent preparation in all the lines of our profession it would seem presumptious, uncalled for and absolutely unnecessary to bring before this body of intelligent men so simple a subject to engage our thoughts for even a few minutes; yet I am convinced that, while the necessity for perfect asepsis is recognized in a general way, the details are often neeglected, and as a result we are still finding among our women patients those whose pelvic complications in later life date back to a confinement with an improper technic.

These cases are in a great measure the ones attended by the ignorant midwife, the responsibility of which is upon the midwife, but more so upon the family that employs her; yet I wish to point out that in a large degree the responsibility is indirectly upon the profession, and especially the family practitioner, whose duty it is to enlighten the public in matters of this kind.

The only remedy here is the elimination of the midwife except as a helper to the obstetrician, and then only the intelligent ones who are registered as such after proper instruction and training.

We have all seen the evils of this woman, who is usually the most ignorant and the dirtiest negro in her section, and I feel safe in predicting that within a few years we shall be able to accomplish the relegation of her type to the proper place.

The general practitioner is the man who attends these cases, and while we might picture the ideal condition with the obstetrician as a specialist, we must admit that many years will elapse before this work falls entirely to the specialist and therefore it is to be dealt with by the general man. Let us look squarely at the situation and deal honestly with it. We all know, and as I have said, we all practice in a general way a strict asepsis; but the question is do we exercise in detail the strict technic we know to be necessary to obtain the most perfect results?

Without assuming to criticise the other man would it not be well worth a few minutes of our time to review some recent cases attended, to see if we have omitted any points of importance in our obstetric technic? Have we made proper arrangements previous to confinement, such as providing sterile sheets, towels, perineal pads, etc.?

In my opinion the preliminary preparations should, wherever practicable, be placing the patient in the maternity department of a well-regulated hospital; then all preparations are at hand without providing them for the individual case. Especially is this true when instrumental delivery or any interference of the normal functions is anticipated. Hospital facilities should be provided for these cases and the obstetrician should insist upon having them.

Where it is not practicable the delivery room of the patient's home should be properly arranged for lights and everything possible to contribute to a good technic.

Having the case in active labor, either in the home or the hospital, let us see if we are prepared for the surgical condition. Have we washed our hands and made other preparations as in other surgical conditions? This should be done even where a normal labor is expected, for how can we be sure that some abnormal turn will not come?

Scrub the hands with brush and soap, use your antiseptics and then, to be sure of asepsis, employ the sterile rubber gloves.

Of equal importance also is the preparation of the patient,—the field of operation; for to render ourselves sterile and leave the patient unprepared is doing only half the duty required of us.

It is our duty, of course, to prevent a tear of perineum or cervix, but suppose it should occur. Then how about its repair under improper aseptic surroundings? I take it that none of us now contend that the obstetrician has fully discharged his duty who leaves a patient with a torn cervix or especially a torn perineum. Have the case so completely at your command that an immediate repair can be done without fear of infection. And this point could not be passed over without a reference to the trained nurse, who should be at hand in all cases and who is absolutely indispensable where a perineorrhaphy is done.

Proper preparation of patient and operator, carefully performed operation and perfect technic all count for nothing where the case is turned over to some party ignorant of or not familiar with the care of such cases. The after-treatment is, therefore, of prime importance, and if neglected we have again imperfectly served the case.

As these most important details are recalled can we sit quietly around and sound no word of warning to the midwife patron? Can we agree to

assume the responsibility of attending these cases with imperfect preparations or facilities for meeting possible emergencies?

Are we willing to argue the physiological functions, saying nature will take care of the situation, and thereby fool ourselves into the "do-nothing" idea? Have we been guilty of depending upon nature too much, and when an abnormal condition arose found ourselves absolutely unprepared to handle it? If so, my dear doctor friends, let me urge that we consider now the seriousness of the situation and the responsibilities which confront us in this class of work; and even though it is a simple thing and something we all know and in a way practice, is it not true that by exercising more care and preserving a perfectly aseptic technic we can materially decrease the number of puerperal infections and save subsequent pelvic operations, much suffering and even many lives?

DISCUSSION.

Dr. C. S. Grayson, High Point: I have read the transactions of this Society for a number of years, and this question of the midwife comes up every year or two, and it seems to be a question that is hard to handle. It was suggested some years ago that these midwives, or the more intelligent ones, be instructed by the physicians to such an extent that they could be trusted with these cases. I think that is the wrong thing to do. It is hard enough for a physician to handle these cases intelligently, much less a midwife. If it takes an intelligent young man four years in a medical college to learn how to practice obstetrics, how long would it take these ignorant women to learn how to handle these cases properly?

Some years ago, in the town in which I practice, a number of women were delivered by midwives. At this time there is hardly one white woman a year delivered by any but a regular practitioner. We have eliminated the midwife by talking to the people and telling the midwife nothing. We have been so careful about the asepsis and we have impressed the patients to such an extent that they are afraid of the midwives. We have no more midwife question in our town. In the practice of obstetrics I have seen not one single case of infection since I have been practicing medicine.

Dr. J. W. McClelland, Maxton: We have not only white and negro midwives in our county, but Indians, or Croatans, and I would suggest that the gentleman who preceded me come down and teach our people to eliminate the midwife. Practically all the Indians are delivered by midwives. A few months ago a white woman was delivered by an Indian midwife. Four days later I was called to the case and found puerperal sepsis. In cleaning out the uterus I removed a chicken feather

from its interior. I consider the midwife problem one of the worst problems we have to deal with.

Dr. J. M. Northington, Boardman: I understood one of the gentlemen discussing this paper to say that the midwives should be told nothing. I think the midwife is something we shall have with us for a long time, especially among the colored race, and I think they should be told a great deal. There are very few white women in our community who have midwives. There are very few cases of colored women who have doctors. In my practice I have never been called to see a case of puerperal sepsis subsequent to a delivery attended by a midwife. I have been called to see many cases attended by doctors. We instruct the midwives in our towns. We instruct them that if there is any doubt about the outcome, they shall notify physicians, and we have gotten very good results from this line of treatment. Above all things, tell them not to make vaginal examinations. I find that they are usually very amenable to such instruction.

Dr. Cyrus Thompson, Jacksonville: Dr. Northington has said that in a practice of five years in North Carolina he has come across no cases of puerperal infection in women delivered by midwives, and that he had found cases of such infection in women delivered by physicians. There is a very good reason for that. A physician is much more likely to be infectious than the ordinary midwife, because the midwife has only ordinary dirt on her hands, while the physician may have handled pus of various sorts in various places. It is much more difficult for a physician to be clean than for a midwife to be clean.

I want to call attention to another fact, that is, that negroes are infected very much less than white people. They are a lower order of folks, and like animals, they resist infection. A delicate white woman will suffer infection when a robust negro woman would not be infected at all under the same circumstances. That is a fact.

Some one said that we should not tell the midwife anything. I come in contact with them necessarily in my practice, because in a large portion of my territory they are the agents for the vast portion of the incoming tide of immigrants, and for the sake of the folks they come in contact with I do endeavor to teach them as much as their capabilities will permit them to learn, and I do try to teach them ordinary cleanliness. Until the State of North Carolina shall make some provision for licensing and teaching midwives it is a duty incumbent upon the medical profession to make these midwives just as capable and cleanly as possible.

Dr. L. B. Evans, Clarkton: Every midwife within my practice, that I know of, uses bichloride tablets and plenty of soap. They are taught

never to interfere, and if anything is wrong to send for a physician. In this connection, and in connection, too, with the talk of Mr. John E. Ray in this hall, I beg to say that when I was in the Senate last year a bill was passed by the House and came into the Senate and referred to the committee of which I was chairman, making it a misdemeanor for any physician or any midwife to fail to use the proper antiseptics in the eyes of new born children. The bill required that they use a solution of nitrate of silver in the eyes of all newborn children. I hold that when the laws of North Carolina become so rigid that they endeavor to make any physician, much less all the physicians and all the midwives, use any one specific remedy, they were going farther than was right, and that it would be a law that would not and could not be enforced. I do think, though, that every midwife ought to be taught to use two medicines, nitrate of silver and bichloride of mercury. I think they should be instructed in the use of these two drugs and no others, and taught never to interfere in a case.

THE VALUE OF PITUITARY EXTRACT IN OBSTETRICS.

Seavy Highsmith, M.D., Fayetteville, N. C.

There has been a long-felt need in obstetrical work for some drug or agent that would stimulate a contraction of the longitudinal fibers of the muscles of the uterus without a corresponding contraction of the circular fibers. Such an agent has been presented to the profession in the form of "Pituitary Extract" made from the posterior lobe of the pituitary body. Those who have studied the anatomy and functions of the pituitary body tell us that it is developed partly from the ectoderm of the buccal cavity and partly from that of the neural canal. It is therefore partly epithelial and partly nervous in origin. The anterior and posterior lobes seem to serve different functions, the anterior lobe having to do with the general growth of the body and especially the skeleton, while the posterior lobe serves to promote the contractibility and increase the tone of plain muscular tissue generally, as well as of the heart. It is also claimed that it increases the activity of certain glands, especially the mammary glands and the kidneys. It is therefore the extract or fluid from the posterior lobe of the pituitary body that is used as an oxytoxic in obstetrical practice.

After having promised our chairman (Dr. Averitt) of "The branch of Obstetrics" to write an article on this subject I realized that my experience in the use of pituitary extract has been too limited to add anything of statistical value. With this apology, and encouraged by the fact that nothing has before been presented to this Society upon this

subject, and realizing also that this is an age of animal extract and serum-therapy treatment, I have decided to give my observations and experience with its use.

During the last eighteen months I have used pituitary extract in twenty obstetrical cases with more or less satisfactory results. I have always waited until dilatation of the cervix is well advanced before its administration. My results briefly have been as follows: In seventeen of these cases the pains were remarkably increased, beginning usually about fifteen or twenty minutes after its administration.

The dose given was 1 cc. of Park Davis & Co.'s "Pituitrin." Labor has been completed within one and one-half hours following its administration.

The other three cases might be worthy a more detailed report.

January 18, 1914, I was called in consultation with Dr. T. C. Bullock, of Autryville. Patient, Mrs. T. G.; age thirty-seven; primipara. Slightly contracted pelvis. Had been in labor four days with pains rather slow and light of tone, but sufficient to prevent sleep. The patient at the time I saw her was beginning to show some signs of exhaustion. The pains had almost ceased; dilatation practically completed, head engaged; no descent. We decided to give her 1 c.c. of Pituitrin hypodermically. Dose administered at 10 o'clock a. m. Fifteen minutes later the pains were reëstablished with good tone and strength, occurring at intervals of every ten minutes. At the end of two hours considerable progress had been made, but pains again fagged. With the second dose of ½ c.c. pains reëstablished within twenty minutes and labor was terminated thirty minutes later. Mother and child both living. The puerperal period was uninterrupted except for a painful abscess of the jaw, caused by a bad tooth.

On March 16, 1914, was called in consultation with Dr. W. P. Olive. Patient, mulatto woman, eighteen years old; primipara. Had been in labor for twelve hours. Dilatation was slow and tedious. At the end of twelve hours patient began to show signs of exhaustion and pains smaller and further apart. We decided to give pituitary extract and administered 1 c.c. Pains were reëstablished with good tone in about fifteen minutes and child was born thirty minutes after its administration. Mother showed evidence of specific infection. Child poorly developed, low vitality. Tips of fingers and arrears on the feet had no skin development. Nails absent. The child was syphilitic and died about half-hour after birth. Mother was put on specific treatment and made satisfactory recovery.

June 1, 1914, was called to see Mrs. W. Pregnant at term, but was suffering with an acute colitis. There were frequent stools, considerable amount of mucus and some blood. This kept up for two days. On the evening of second day labor began. This patient was twenty-seven years old; primipara. At the time labor set in was somewhat fagged out and pulled down by the two days of dysentery. Her pains were frequent and strong, but of short duration. At 11 o'clock same night examination showed that the dilatation of the cervix was well advanced. I then administered 1 c.c. of pituitary extract. In fifteen minutes pains increased and the duration of the pains was somewhat lengthened. They kept up at intervals of ten to fifteen min-

utes during the night with some descent, but progress slow. At nine o'clock the morning following I again administered 1 c.c. of pituitary extract; this again stimulated pains and she continued making some progress. At eleven o'clock, two hours after the last administration, patient began to lose heart. The head had descended, but was not down over the perineum; no progress was being made. I decided it time to give her surgical assistance. Called in Dr. W. S. Jordan, who gave her the anesthetic. I applied forceps and delivered. In this case the pituitary extract was unsuccessful in terminating labor, but I am sure without its use we would have had to apply high forceps, with much more difficulty for us and danger to the mother, than from the comparatively low application we were able to make after it had been given. The child was stillborn, due to the compression of the cord, which was firmly drawn about its neck, cutting off the circulation for a period of twenty minutes during the tedious passage of the head and shoulders over the perineum. The mother made a nice recovery.

It has been suggested that the administration of pituitary extract is liable to kill the fetus by too strong compression from increased uterine contraction.

In none of my cases have I had any complications from its use. Cases have been reported with profuse hemorrhage following its use. In my opinion this was due rather to laceration caused by the increased force of the pains and the rapid delivery rather than the use of the drug itself. We must bear in mind, however, that we do have an increase of blood pressure, beginning soon after its administration, and it therefore should be used with caution with all patients showing signs of high blood pressure or organic disease of the heart and kidneys. I think pituitary extract will prove of great value in obstetrical practice. However, if not used intelligently, it is capable of doing a vast amount of harm. Along this line allow me to quote Dr. J. W. Williams in his presidential address delivered before the American Gynecological Society, published in the *American Medical Journal*, June 6, 1914. He says:

"I might continue to recount many other advances in the practical treatment of childbirth and its complications, but time will not permit. Consequently, I shall refer only to the abuse of ergot. Its employment was considered on several occasions in the early days of the society, when the concensus of opinion developed that it was indicated only after the expulsion of the placenta. It may also interest you to be reminded that it was frequently administered so freely in the treatment of abortion as to give rise to chronic ergot poisoning, and that John Goodman reported an instance in which it had led to gangrene of the extremities. I lay stress on this almost forgotten fragment of medical history, for I believe that unless correct teachings concerning the action of pituitary glands substance soon becomes current, a similar crusade will be necessary to check the abuse of this powerful therapeutic agent."

In my opinion the physician who rushes to an obstetrical patient and

would hastily administer a hypodermic of pituitary extract with no other reason than to shorten his stay at her home, not considering what the outcome might be to the patient, would be committing an act no less than criminal. It acts like a wedge driven in a piece of timber. It often causes a "Labor Storm." Its action may be powerful enough to rupture the uterus. It should be given with care to primiparas, and should not be given in any case where labor is progressing normally.

Instead of relieving the suffering of the woman, it intensifies it. The only relief it offers the patient is in shortening the duration of the labor period. We must therefore study carefully whether or not and when it is necessary to shorten this duration.

If the patient is progressing with the labor and the pains seem greater than she can bear, and we are called upon to give her relief, it would be far better for the patient and more practical for the physician, to give hypodermically an H. M. C. tablet, or one-fourth grain of morphine sulphate.

If one is inclined to follow the teachings of Kronig and Gauss, in their obstetrical clinic at Frieburg, Germany, he might try the combination of scopolamin and morphine, the drug of the wonderful "Twilight Sleep." Allow me to call your attention to an article in the June number of *McClure's Magazine*, entitled "Painless Childbirth." The wonderful results at this German clinic has been written up so as to make the lying-in period read like a trip to "Fairy Land."

I would also call your attention to the criticism upon this article in the *American Medical Journal*, of June 6th, 13th, 1914.

If it is evident that the termination would take place within a few minutes give her chloroform, just enough to make her unconscious of the pain.

If the patient is suffering with uterine inertia and progress thus stopped, if dilatation is well advanced and the child's position correct, the pituitary extract will in most cases give pleasing results.

If the labor has been long and tedious, and if there has not been enough descent for the application of forceps, its administration will often enable you to deal with low or medium rather than high forceps.

Its action is most prompt in the second stage of labor. Its administration is said to be of use in cases of retention of urine following labor. If given with deep injection in the muscles, when bladder is full, it often causes a spontaneous emptying of the bladder, while if the bladder is only half full the action is less marked.

It will sometimes produce premature labor, but is not reliable for that purpose.

The results are unsatisfactory in the first stage of labor and the

undilated cervix, but is of marked value during the second stage of labor if properly used.

Postpartum it is also of some value, but I prefer the use of ergot.

DISCUSSION.

Dr. L. B. Evans, Clarkton: I enjoyed that paper, and I was especially glad that Dr. Highsmith laid especial emphasis on the danger of the drug. I use pituitrin, and I would just as lief go to a labor case without my instruments as without it, but I know when I use it that it is a dangerous drug. In most of the cases in which I have administered it, I have had results in from three to fifteen minutes. Any drug that is powerful enough to accomplish these results in so short a time is necessarily very powerful and very dangerous. I have never had any bad results, and I hope that my caution will prevent me from having any. I would like to caution any one who uses it to be very careful that all the indications are thoroughly patent when it is used. Mr. Hearst says that there is no other drug to compare with it in its power and action. He describes its action as clonic, while the action of ergot is tonic. In other words, this drug makes the natural contraction increase, while the other drugs hold them in continuous contraction. Ergot creates a prolonged artificial contraction. Pituitrin makes more powerful the natural contraction.

Dr. J. A. McClelland, Maxton: I simply wish to report an experience with this drug which sounds a note of danger. My patient was showing slight inertia, and I administered pituitrin. In twenty minutes after its administration, she was delivered with a complete perineal laceration. It now appears clear to me that if I had given a heavy dose of chloral instead and allowed my patient to rest, she might have been delivered by natural forces, and the accident prevented.

Dr. Cyrus Thompson, Jacksonville: I believe with Dr. Evans that pituitrin is one of the most effective of all the drugs I have ever used. When used in obstetrics, it should be used in very small doses; but I want to remark that a man when practicing obstetrics should attempt to do his work exceedingly carefully and well, and that it requires that he shall take his time and be very patient. It is frequently irksome to be tied out in the woods on a slow case, and I want to make this general observation for the measure of our patience, which I think is true, namely: That a vast majority of the human race go out of this world

on low tides and that a corresponding majority of the race is born on in-coming and high tides. I don't know what the moon, which controls the tides, has to do with these things; but I wish that some of you would note in your practice any incidents of deaths and births with low tides and high tides. I believe that there is something in it. I never make much hurry in getting to a case when the tide is low, and if I am with the case, I waste no pituitrin on low water.

But, Mr. President, I rose for the purpose of saying that whether the tide is high or low, pituitrin may perhaps be effectually used in an altogether different sort of case. I had, a few years ago, a case of malarial hemoglobinuria with suppressed urine. I thought the patient would die from this suppression. Knowing of the diuretic effect of this drug, I gave him a 15 minim dose of pituitrin, and in six hours after I had given the dose there was abundant secretion and passage of urine. This function of his kidneys was renewed and kept up by daily doses. I have only this one case to report. Those of us who practice in a malarial section and who have suppression of urine to deal with, and see our patients go out in consequence of the poisoning consequent upon this condition, would do well to remember this case of mine and find out if this result I got was merely an accident, or whether this drug might be generally of value in such cases.

CONSERVATION OF HEALTH.

A. S. Pendleton, Clinical Pathologist, State Hospital, Raleigh.

To the lay mind, this subject will no doubt seem a strange one to be discussed before doctors by one of their number, but that is because they do not realize how altruistic is the doctor.

No essay on health conservation would be complete without reference to the activity of the Society for Prevention of Cruelty to Animals or the so-called Antivivisectionists.

We doctors know full well the absolute necessity for animal experimentation in order that our knowledge of the means for preventing disease may be increased, but the laity needs to be taught this necessity, and by us, otherwise these well meaning fanatics will so limit our rights in regard to the use of animals as to hamper research work to a very considerable degree. Therefore it behooves us to begin the fight before we are attacked, by giving the public all the information possible.

We of us who have done, or have come in touch with doctors who

do, research work, know that no experiments are performed on animals without anesthesia, nor are any performed that do not promise to give real help in the advancement of science. An unprejudiced person will admit without argument that a large majority of the greatest discoveries in medicine have been accomplished through and by animal experimentation, and, in order that the good work may continue, it is necessary that some animals shall be sacrificed in the future. That this will be done only when necessary, and then only in the most humane manner possible, is a simple statement of fact—whatever these S. P. C. A. people may say to the contrary.

Is it any worse to take the life of a guinea pig while he is made insensible to pain by an anesthetic, in order that we may discover the means of combating some dread disease and so saving the life of not one but many human beings, than to wring the neck of a writhing chicken to satisfy the craving of our appetites?

Dr. Samuel M. Brickner has very aptly put the situation in a little poem entitled "Antivivisectionist Mercy."

The counterpane that covers motherhood
Too often still becomes a shroud entwined:
Let not this sacred act demand our blood
But spare the dog and all his sacred kind.

Our little children fall a hideous prey
To childhood's scourge, and broken, bent, they lie:
Blot out this epidemic from the day,
But spare the monkey and the stable fly.

The white plague stalks abroad with poisoned breath
And leaves men prostrate like a broken twig:
Oh, spare us from this poignant living death,
But do not touch the precious guinea pig.

From over seas the pest comes like a ghost,
And settles grinning on our household mats;
Oh, save us from this devastating host,
But spare the poor mosquitoes and the rats.

A growth malign, with tentacles a score,
The fairest and most useful friends will claim:
Oh, let us suffer from this scourge no more,
But spare the mouse, we ask, in mercy's name.

Being in the position of a third party, so to speak, with the profession on one side and the laity on the other, in view of the fact that I no longer practice medicine, makes it possible for me to speak more freely to this mixed audience of what you doctors have done in the

past, are doing now, and hope to do in the future, in the way of the conservation of the health of our people.

It may surprise some of you to hear me make the positive statement, that there are those within hearing of my voice who will live to see doctors paid to keep people well, and whose pay will be stopped so long as the patient is sick. In other words, we will adopt the method which has been used for centuries by the Chinese with satisfaction. Why do I say this? Because the handwriting is already on the wall, and so very plain that he who runs may read. Is it a very long jump from paying a county health officer for his whole time in order that he may the better look after the general health of the community, to paying your family doctor to keep you, your wife, and your children well?

Advances in the public health service have come first because it is so very human to feel that the other fellows need looking after, while we ourselves are doing quite well, thank you! The time has already come when the big men, the strong men, the wise men are beginning to stop, to look and to listen. From that it is but a step to demanding that something shall be done in the premises, and great is my pity for the poor unfortunate doctor who makes of himself a stumbling block in the way of progress, instead of the pillar of cloud by day and of fire by night which he should be, for the time will speedily come when there will be weeping and wailing and gnashing of teeth in his house.

We have gotten so in the habit of congratulating each other on the wonderful strides that have been and are being made in medicine and surgery (that is, in the treating of disease already present) that it is just possible that we are to a certain extent losing sight of our great responsibility in the prevention of these very ailments.

The greatest compliment of all the ages is the one unconsciously paid to us by the laity in the taking for granted that we will do our very best to prevent the very conditions from which we derive our livings. This makes the responsibility all the greater. That this confidence is not altogether undeserved is proven by the improvement constantly being made in the public health service, in the widespread use of vaccination for the prevention of smallpox, in the inoculation for the prevention of typhoid, in the giving to the people through the lay press the knowledge necessary to the prevention of malaria, in the great campaign against hookworm infection now being carried on throughout the country, and so I might go on, but let this suffice to show that, in the past at least, we have been faithful stewards, and let us look about us for opportunities for continuing the good work so promisingly begun.

The great human family has become big-minded enough no longer to be hampered to any considerable degree by precedent or former experience, and has reached the receptive stage when it comes to any proposition looking to the betterment of the race. All it asks is show me—prove that the present way is wrong and show me an ideal way, if possible, but at least a better way.

The first great problem in health conservation is in the betterment of the race stock. For many decades it has been known that wonderful things in the way of improvement may be accomplished in so far as animals and plants are concerned by careful selection and proper breeding, but it is only comparatively recently that propaganda for obtaining similar improvement in the human animal have been preached. That something is being accomplished no one will deny, but just think what can be done by the universal adoption of, and living up to, the great principles of eugenics. Is it not the bounden duty of every doctor to preach this gospel without ceasing, and to show by both precept and example that he stands unwaveringly for better babies, and so better men and women? We must not expect to prevent every undesirable marriage in a day, a week, a month, a year, or even in a generation, but let us hope to make them fewer every day, so that, as time passes it will become more and more difficult for undesirables to marry, and then it will take only a few generations to make it impossible. If we do our full duty to posterity in this respect, our children's children will have little use for the elaborate system of protection against disease so necessary at the present time.

Allow me to call your attention to two great modern movements looking toward the upbuilding of our race. I allude to the Mental Hygiene and The Life Extension movements.

The Mental Hygiene Society of North Carolina, which was recently organized, has for its object the improvement of the mental health of the people of our State, and it hopes to accomplish this largely through and by education. They will take advantage of every opportunity to teach the people the great benefits to be derived from proper mating, as well as the incalculable harm coming from the union of the undesirables.

They will teach with patience and perseverance the proper way to raise children, so that they may develop into men and women, strong both mentally and physically, and these men and women how they may best avoid those pitfalls which tend to sap the mental health and bodily vigor of the poor unfortunate who may fall therein. Should not we, as doctors, give this movement the very best there is in us—first,

by joining the society; and second, by helping to fight its battles with all our might and power? The large number of its members at this early date and the character and standing of those members is strong evidence of the attitude of the best element of our citizenship toward health conservation. It is my hope and belief that every doctor in North Carolina will not only be a member, but an active and an enthusiastic one before the first year of its existence shall have rolled by.

Some time about the first of this year there was formed in New York city a company called The Life Extension Bureau, which will undoubtedly do much for health conservation. Their idea is to make regular, periodic, and thorough physical examinations of their patrons to determine whether they are well, and, if not, to point out the morbid tendency, and to refer them, together with the data obtained at the examination, to their family physicians for advice, if that is all that is necessary, or for treatment, if that is required; working on the principle that a stitch in time saves nine, and let me assure you that nowhere does this old saw apply as in disease.

They claim that they will have skilled diagnosticians do the examining and that their laboratory facilities will be adequote; if these are facts, and I believe they are, then the fee charged will be only nominal, when compared to the service rendered. This result is accomplished by a combination of forces, and the great bulk of the total work done. As you will recognize at once, this is the second step toward the Chinese plan, the full-time health officer being the first.

The services of the company have already been engaged by some of our largest life insurance companies to examine their policyholders, and no doubt a large part of their work in the beginning will be done for insurance companies and large industrial corporations, but it will be only a short time before the public will take hold, for the American public knows a good thing when it sees it. The public's attitude will be: If it is profitable for a life insurance company to pay out good money to keep me well, how much more does it profit me to do likewise?

As to the hygienic and sanitary measures now adopted for health conservation, suffice it to say that there is improvement every minute, and that it behooves us, as doctors, not only to keep posted as to these advances, but to see to it that they are utilized, in so far as is possible, in the particular community in which we live.

The most hopeful and promising aspect of today is the fact that we see on every side estimates of the actual cost in dollars and cents of both sickness and death. Just so soon as you can convince the public that these causes of economic loss are to a very considerable degree

preventable, you will not only be allowed, but will be compelled to get busy and to do your very utmost in furthering the good work.

It has been said that the cheapest commodity in the whole world is human life, but let us thank the good God that that was yesterday, and that the glorious sunrise of a most beautiful today is with us now.

WOMANHOOD, FROM THE PHYSICIAN'S VIEWPOINT.

(Annual Oration.)

John R. Irwin, M.D., Charlotte, N. C.

I have no apology to make for this subject, only my temerity in presenting it to you this evening. It is as old as Eden and as new as the dawn of the Twentieth Century. It has been the subject of prose, the theme of orators and the song of poets. It is too interesting to be hackneyed, too important to be neglected.

The tendency in literature to idealize woman is one which is, on the whole, praiseworthy in its spirit and beneficent in its results. It is praiseworthy in its spirit because it is an indication of the reverence in which woman is held by man. If the time should ever be abated and woman should appear to her companion less than she now appears to him, if she should ever exchange her supremacy of influence for an equality of power, he would lose in the transfer almost as much as she. It is beneficent in its results because our life depends upon our ideals. Because woman is idealized by man, woman is inspired to her highest and noblest self, and man is inspired to be worthy the appreciation of one the value of whose judgment he may sometimes possibly overrate.

Nevertheless, whoever reads the signs of the times aright will not fail to comprehend that the day of woman's activity, power and glory is upon us. Through the fevered discussion of the "rights" of woman, which has been one of the striking phenomena of our day—surging upon the shores of our literature, our politics, and our social life with much of false assertion and unreasonable demand—beating frantically sometimes against barriers of political economy and social morality, whose fall would unsettle the very foundations of society—it cannot be doubted that a great tide of achievement for woman has been gaining ground.

When we look back fifty years and note what women have achieved in educational, business, philanthropic and sociological lines, there is cause for congratulation, and American womanhood stands on a broad, high plateau, with eager faces turned hopefully to the future. But they are yet many leagues from the millennium; and, with it all, does she sufficiently realize the duty and responsibility devolving upon her in regard to the betterment of home and humanity? This new century is ushering

her in as a decided factor in the world's progress and will doubtless bring her into greater activities and prominence than ever, but God instituted woman many centuries ago, when He set certain limits to her physical development, and He has not yet shown any decided intention of changing her mental qualities into replicas of the biped He created a short time previous, and called man.

Let me say here and now that I have personally no objection to women voting, but I am opposed to any proposed reconstruction of woman which would turn all that admired half of the race into a second edition of man, and in my opinion this would be a very dreary world with only male and female men in it.

We gladly hail the good already done in the reform of barbarous laws and the opening of new opportunities of education and industry. But we need to watch against that tendency to Nihilism which is the peril of all reforms. Some there are who would sweep away everything existing in order that their new theories might possess the ground alone. But Christian, American womanhood, as it exists today, at this height of human advance, is too fair and precious a treasure to be rashly flung into the crucible of any experiment, in the hope that some better thing may come out. Rude warfare may in a moment shatter a Parthenon which, to the end of the world, can never be built again. We would rather perfect the Temple of Womanhood after the pattern of Cologne Cathedral, where the walls piled by long vanished hands are left firm in place, the stained glass, centuries old, casts its soft light down the stately aisles, while new towers are reared heavenward by the wonderful machinery of today and storied windows of living artists answer those of ancient days; and all according to the plan of the primal architect.

Coming to the question of the intimate resemblances between the masculine and the feminine intelligence, no man would be venturesome enough to dispute these, but he may be pardoned if he thinks—one would hope in no spirit of exaltation—also of the differences. It is an unquestionable truth that men and women constitute different classes of human beings, but it is a distinction without disparagement.

Our modern knowledge of woman represents her as having characteristic differences from man from a biological and anthropological standpoint. Notwithstanding these differences, no one doubts her ability in any sphere of life. Women have proved their power to speak by speaking, to combine by combining, to organize by organizing. She has guided great movements of charity, established missions, edited journals, published works on history, economy and statistics, governed nations, led armies, filled the professor's chair, taught philosophy and

mathematics to savants, and piloted ships across the sea. There can be no true, complete national life unless womanhood has a vital share in its conflicts, its hopes, its ambitions and its triumphs. Miriam rendered Israel a great service and was a contributor to the commonwealth when she protected the precious life of Moses, and in the first great act of rejoicing which followed the overthrow of the hosts of Pharaoh in the Red Sea, Miriam's place was in the foreground. One of the greatest treasures the Hebrews brought out of Egypt was Miriam, their first prophetess, but limitations in her life came out in the episode when she criticised and formulated objections to Moses' second wife, and the part she took in the attempt at social rebellion and breaking down the authority of Moses, which was to imperil the nation. She and Aaron exhibited something of personal jealousy and fear of their own influence when they said, "Hath the Lord indeed spoken only by Moses; hath He not spoken also by us?" Miriam belongs to the past, but she is a heroine of the Exodus, a living symbol of the time of preparation, a forerunner of the so-called coming woman. The song of Deborah was one of the oldest and noblest lyrics in the world. She could not only write Israel's Marsellaise, but she could lead the armies that her song inspired, and if she had not the visions and voices of Joan of Arc, she had her faith and courage in the unseen, when she and her personally appointed general Barak gained a wonderful victory in the plains of Esdraelon, the "classic battle-ground of scripture," and the leader was a woman even in that early age. Victoria ruled England, and many an Englishman many times sang in adoration, "God Save the Queen." The wisdom of the reign of Elizabeth, "Good Queen Bess," gave England her prestige. Isabella I. of Spain, the patron saint of America, without whose generosity our country today might have been a wilderness, after Ferdinand's refusal, the disapproval of the wise men of her own kingdom rose in her queenly majesty and said, "I undertake it for my own crown of Castile, and will pledge my jewels to raise the necessary funds." Florence Nightingale brought order and efficiency into the hospitals of the Crimea; and Clara Barton, with her clear head and generous heart, lifted up the starving women of Strasburg, and made it possible for them to be self-supporting. Examples of woman's ability and success in every line of endeavor might be multiplied.

But the question more serious in the public mind today is the changing attitude of our womanhood toward social and public questions. The South for many generations has been noted for the chivalry of its men and the modesty and virtue of its women, but it does not require the eye of a prophet to see that there is a widespread decay of conserv-

atism and modesty in our womanhood, which will not only prove disastrous to them but hurtful to the members of the other sex as well. In view of this every one who has a real fellow-feeling for woman, and who is concerned for her material welfare, as a father is concerned for his daughter's, will above everything else desire to nurture and encourage in man the sentiment of chivalry, and in woman that disposition of mind that makes chivalry possible. Our factories may yet go up in smoke, our railroads and telegraphs be made the sport of anarchy and war, our farms become desolate and tenantless as the fertile plains of Italy. With socialism and communism looming on the horizon, it is no time to scoff at tenderness, or trample upon love. The industrial and economic are but the outer garments of our civilization. Love is the substance, the indwelling spirit, the soul of all of their activity. The most enduring element of our national strength lies in the fact that our American life centres around the fireside. We are proud to boast of the bravery of our men, the beauty and purity of our women, and they have these qualities because the home is their school and the mother their teacher. The wise Creator, when He made woman, gave her the two highest offices in His gift—those of wife and mother. And it is a pathological fact that women as a sex must respect and revere the divine mission of their sex, which is motherhood. The moment they outrage or distort or deny the purpose for which they were created they become shirkers and drones. Misdirected government is a bad thing, so bad that the men of this country can be relied on to correct it whenever necessary, but misdirected sex is a national tragedy, which, if it is not checked, will degenerate the race. Rather may the American woman be the mother of a great race.

The model held up to Christian women is not the Amazon, glorying in her martial deeds and prowess; it is not the Spartan woman, who made perfection consist in the development of physical strength at the expense of feminine decorum and modesty; it is not the goddess of impure love, like Venus, whose votaries regard beauty of form and personal charms as the highest type of female excellence; nor is it the goddess of imperial will, like Juno. No; the model held up to woman from the dawn of Christianity is the peerless mother of our Redeemer, and the paintings of the Madonna hang upon the walls of many a library in the homes of our country.

We hear much of the "feminine unrest" now agitating the world. There may be—and certainly are—restless women. But so, one must believe, there always have been. Eve was restless, so were Judith, Helen and Sappho, and those interesting women who lived in the French courts, the ones who helped the Pilgrim Fathers maintain themselves in their

extremely narrow paths of righteousness, the ladies who gathered to sew things for the soldiers at the front in the time of the War between the States, and those others who have denounced their sisters for demanding the ballot. Restlessness is a trait of the species and has no sex, any more than love and jealousy and envy and a liking for power and fame have.

For this feminine unrest, let me suggest as a palliative, or perhaps a cure, the renaissance of the home. Lectures on domestic science and home efficiency should be increased. Hand labor should be replaced by machinery, just as it has been in the factory, and domestic economy and domestic science schools should turn their attention to the practical side of work and emancipation from drudgery. The A. and M. College, located in this city, has accomplished a great deal in the extension and encouragement of agriculture, and there ought to be at the University of North Carolina and in all of our female colleges a course for women in home economics and domestic science. While governments, both State and National, spend actual millions upon decreasing the toil and increasing the results of the man's work on the farm, for instance, nothing has been done for the farm woman. Let our public men, teachers, politicians and legislators, who have the good of our country and race at heart, be alert for the modern and scientific and endeavor to originate, foster and give welcome place to these courses whenever and wherever they can, and let women learn that scientific or simplified housekeeping is not beneath the attention of the refined nor beyond the comprehension of the uncultured. It is the duty of the rich and the salvation of the poor.

Women should have the best and highest education they can obtain; and education involves care of the physical, culture of the intellectual, and direction of the moral and spiritual nature. I believe it is the duty of every woman to make of her own body the strongest, best machine possible; and I believe that one of the greatest lessons to be taught the women of America today is care of themselves.

This century, though yet young, has already been not inappropriately termed the health age. The things that make life worth while, that really constitute happiness, may be founded on physical health, but do not consist in it solely. In our laudable zeal over hygiene let us not forget to keep in touch with the higher things. In our emphasis on building muscle tissue and blood for resistance to disease, let us not forget the quality of the neuron through which the spirit sends its message. In our passion for health and vigor, let us not forget "the passion for sweetness and light and for making them prevail."

I believe that parents should patronize, support and encourage those

schools in which the Bible is daily taught—not an expurgated woman's Bible—but the Bible of our fathers and mothers; because it is one of the most effective instruments of intellectual culture and mental discipline, which presents the sublimest morals, and which is the true source of spiritual light. In such temples of science our daughters may become as stones polished after the similitude of a palace. A writer urges this most beautifully and impressively in these striking words: "Connect Jerusalem with Athens; intertwine the ivy of Parnassus around the cedar of Lebanon; weave into the wreath of flowerets plucked from the vale of Tempe, the rose of Sharon, and remember at your festivals that, among the hills of Palestine, there is a hill of tenderer interest and higher hope than either Ida or Olympia."

Educate them in the truest and broadest sense, and while they may have caught the spirit of the times and become expansionists by invading new territories, and may have been masquerading as the "eternal feminine" or the "new woman," these little excursions and diversions will only make her prize the more her old dominion, and the complexities of her nature will find full play in the evolutions in the American home. For here is the key to the regeneration of the race, the rise or downfall of the nation. Here lies woman's divinest opportunity, her supremest obligation and her richest reward.

The former of our bodies and the Father of our spirits had human homes in mind when He fashioned the soul of woman. Kipling makes one of his characters say, "There are just two kinds of women in the world: those who put strength into men and those who take it out of them." All that a man hath will be given for his life—but his life itself he holds at the call of something still dearer; and oftenest, and best of all, that is love.

My plea is for the higher morality and the holier womanhood, and to emphasize the preciousness of home, because the affections and emotions have greatest power within a narrow circle of intense personal attachment and interest. As their range is widened, their vividness is diminished. And while no one yet can tell what the distinctively womanly qualities of mind may do in the wide world, the ages have proved that these qualities are supremely adapted to the making of home.

In the home-life—in the relations of wife and mother, sister and daughter—the affectionate, emotional nature of woman finds the field of its triumph and glory. There it wields against all the world's strifes and temptations, toils and cares, a great and holy power, such as all the systems of philosophy and philanthropy of all time could not equal. The kind of affection which woman gives and inspires has power to

pervade man's whole heart and life, coming up in every change of occupation or pause of thought. Every true man can understand that it was no mere dramatic display of affection, but the simple prompting of his great heart, when President Garfield turned, at the close of his inaugural address, to kiss his wife and his mother, who sat beside him. The thunder of cannon, the waving of banners, the applause of thousands, the assembly of great men, the Presidency itself, however otherwise valued, brought no pleasure so sweet as that of laying them all as trophies at the feet of the self-sacrificing mother, who had been the light of his boyhood's home, and the devoted wife who inspired and shared the cares and toils of his manhood.

Barrie's nice sketch of "Margaret Ogilvie" recites how his mother declared she would be proud to be the mother of Robert Louis Stevenson; as for himself, Barrie vows that all he is or has done he owes to his mother. What an exquisite story is that which Burdette tells of the invalid wife, to whom he read his merry conceits to while away her pain, and who saw his power in her sick room, knew the world admired it as she did, and coaxed him on till, before her sweet spirit passed away, she had seen him on the high places of honor and success.

Dickens has drawn no more beautiful picture of love than that of Agnes Wickfield for her father, as he sinks more and more under the spell of intemperance, and at last comes forth rescued by her tireless devotion. The intense, fervid affection of which the womanly character is capable reaches sometimes, in such cases, an excess which, to a thoughtless or cold-natured person, seems absurd or insane, but, just then, to one capable of appreciating it, becomes sublime in its irrationality, seeming like a reflection of the infinite compassion of God.

Such love is stronger than death. The ocean wind brings across the deep the last whisper of the exile dying afar, whose pale lips murmur "Mother." Under the forest tree, here the surge of battle has swept by, the stricken soldier rests, the hand rigid in death holding the photograph of wife and little ones, just as it held it to catch the last glance of the fading eyes. Such devotion the most majestic woman that ever swayed a popular assembly never won. But such devotion any woman who is true, lovely and loving may win in the humblest home. And of this the world has greater need, for men can make orations, but they cannot make homes.

Language, which is but the crystallized thought of nations, tells the story. Home without a woman is unknown to human speech. The military officer has his "quarters," the sea captain his "cabin," the herdsman his "ranch," the student or clerk his "rooms," or perhaps, his "den," associated men have "clubs," "societies," "lodges." Woman

only has "home"—and man associated with her. The mother can make a home for a grown-up son, a sister for a brother, a daughter for a widowed father. Mother and daughter, grandmother, daughter and granddaughter, perhaps, or a bevy of sisters, will have a "home." But father and son, or a group of brothers, never. Are not two weak points in our civilization now the living of young men unwed in our cities, trying to amass money for princely housekeeping, when at last they marry? By the time they become worth much money, they cease to be worth anything themselves. Cupid should have less cupidity. We need a revival of falling in love, and this twentieth century needs to exalt and consecrate domestic love, and then a renaissance of the home.

Francis E. Willard once said, "The mission of the ideal woman is to make the whole world homelike." But in my opinion the homelike world will be made only by making it a world of homes. Home can never be generalized, because it is founded upon the love of one man for one woman. Make, for instance, your Masonic Hall never so beautiful, with its velvet carpets, its luxurious chairs, its mirrors and gems of art. Make a Sorosis hall to match, with the added graces that woman's taste will suggest. Let the manners of both societies be never so refined, and their thoughts never so exalted. Let them interchange courtesies, have mutual receptions, and all that, and you still have not touched home. But, when some young man's heart says, with fervent truth, "She is all the world to me," and some woman's heart answers with a love that can keep through all the years the spirit of "John Anderson, my Jo," and they join their life's destiny in wedlock's deathless bond, there you have home, though there are none of the luxuries and few of what the world calls the refinements of life.

There is no new woman. They are all identically the same as Eve and Sarah and Ruth. They have the same natures, the same intuitions, the same love of family and home, the same desire to be of use to others that women have always had. There is nothing greater in life than this great principle of helpfulness and service and love for others. It may be the world of home, it may be the schoolroom, it may be the ranks of fashionable society, or it may be the small country town, but her love and her service are needed, and home-making is the life-work for the majority of women.

When the great Creator bestowed upon woman that property which permits her to be the instrument for the propagation of the human species, there was placed in her care the highest physiological function of which a human being might be capable. The perpetuation of the race is a primary concern of the divinity of biology, and motherhood is her divine heritage. A mission so amazing, so divine, demands

woman's soul, her life, her all. Walter Scott or Lew Wallace takes the dead ages and makes their weapons and battles, their ships and houses and temples, and their very horses, intensely interesting to us by weaving around all some vivid threads of personal human life and destiny. And here is a being who may hold such a life in her hand from its very inception, to mould as a potter the clay, for majesty or degradation. If there should come to her a fair living head, with a brain capable of looking across the ages and up to God, with frame of wondrous mechanism, from the blood-vessels that make alive its tiny bones to the delicate cells that pink the skin, all instinct with life and the future, and she able to make of it almost what she will, pity her for the loss of loftier destiny! Not all Rosa Bonheur's canvas horses nor all Harriet Hosmer's cold marbles are equal to one ruddy, smiling, cooing baby, with just the right antecedents behind him and just the right training before him.

The excellences of the great men of all times have usually been foreshadowed, if not exemplified, in the characters of their mothers. Jochebed was the guardian of her infant boy from the edict of Pharaoh, and the boy became the guardian of Jethro's flocks, and then the shepherd, guide, and law-giver of the nation in its great exodus and wilderness march. Elizabeth was the chosen one to whom was given the honor of motherhood to him who was "more than a prophet"—the harbinger of the Gospel itself. The genius and intellectual sweep of Goethe were foretokened in the many-sided brilliancy of Frau Rath. Hannah's faith found its largest fulfillment, not in the birth and infancy of her firstborn son, but in the purity and strength of the prophet judge and his illustrious career as the restorer of the nation. A woman's gentle voice in the nursery changed the civilization of England. Was there any greater work that Osburga, the queen of Ethelwolf, could have been doing than reading Saxon poems to her sons, and awakening the mind of one who became Alfred the Great? Susanna Wesley found time from the domestic duties and trials of a large household to devote to the secular and moral education of her boys and girls. "Beautiful, amiable, thoughtful, devout, and intelligent," says her biographer, "both linguist and lover, she was no more interested in the parsing of Greek and Latin than in the prattle of her children." Never has the world since the days of Abraham and Sarah, and Mary and Joseph, had such a home as that home which gave to the world two illustrious men, a poet and a bishop. The influence of such a mother and such personalities does not cease. We cannot compute what the world owes to this woman who lived and wrought, prayed and toiled so faithfully in that obscure village of Epworth, in that humble parsonage of the eighteenth

century. The mother of Charlemagne, a Luther, a Cromwell, a Washington, was doing the greatest work there was to do in the world in her time. Every mother does not have such renowned sons, but the mothers of the unremembered heroes have a right in history's triumphal procession. They, too, were doing the greatest thing life had for them to do.

Every portraiture of true mother-love and home takes hold on the heart of the nations—Raphael's Madonnas and Longfellow's "Children's Hour," Robert Burns' "Cotter's Saturday Night." And it was the inspiration of a wanderer in a strange land, who felt the loneliness and pain which only those without a home can know, embalmed in deathless song and truest sentiment that ever dwelt in human heart or rose on mortal lips—"Home, Sweet Home!" he cried, and immortality echoed the refrain. I know that Apollo swept such harmony from the lyre that the listening gods were charmed, and the world acclaimed him great deity of song. I know that Orpheus, with magic strain, led rocks and trees and beasts to follow him, and so enthralled the underworld that angels gazed thereon with envy. I know that Timotheus, with wondrous melody, subdued the riotous Alexander, awoke at will within his haughty soul emotions high as heaven, and instincts low as hell, and with a skillful change of chord displaced upon the monarch's lips a sigh of pity with a curse of fate. I know that David threw from his entrancing harp a concord that dispelled the gloom about the brow of Saul, and flooded Israel's palaces with the laughter of music and the joy of song. I know that Eleanor's troubadours at Antioch bewitched the Syrian air with the ballads of the South, and lightened the horrors of the second crusade. I know that the compositions of Palestrina, Handel, Mozart, Beethoven and the rest have vastly elevated man with symphonies sublime. But I know that all of these combined by a master greater than those who as yet have lived into one gorgeous rhapsody can equal not the touching cadence and the simple majesty of "Home, Sweet Home." It contains a sentiment that appeals to men regardless of environment and destiny. It leads them to forget the barriers of tradition, race and birth, and with this song upon their lips all men are brothers in the universal fraternity of God. It is fraternity's battle hymn, and it will be the permanent password when all earth's children have become a common brotherhood. When the Rockies shall lift no more their crags unconquered to the storm; when the Alps shall break their silence, and the Andes dissolve in melody; when the universe shall resound with notes that trumpet earth to judgment—this song, fraternity's truest expression, will burst from the translated living and the awakened dead as the most fitting tribute of mortality to God.

The home, the training school for our country and for Heaven, and making homes, a mission so amazing, so divine, demands woman's soul, her life, her all, for the mothers of the present are the true rulers of the future. In America, and especially in our Southland, every girl is a princess, every woman a queen. And God forbid that political equality, suffragism or "any other creature" shall ever disinherit the princess or dethrone the queen! Long live the Queen!

SAFETY FIRST IN SURGERY.

Chas. T. Harper, M.D., Wilmington, N. C.

In all avocations and professions the pursuit of which is attended with danger to human life, there has recently developed on the part of those exercising supervision and control thereof a determination to adopt as a motto: "Safety First." This determination is based not only upon the desire to meet the demand emanating from the public which is to be served, but as well upon the sound moral and economic considerations involved in all human activity. And it is matter of common knowledge that by the adoption and enforcement of rules requiring more frequent inspection of men and equipment, more rigid examinations into fitness of employees, better trained men, and the installation of safety appliances, the risks to life and limb are being daily lessened or entirely eliminated in many of the industrial operations of the world.

This new spirit or idea, if it may be so called, undoubtedly contributes to the happiness and well-being of society in direct proportion to the extent it pervades the administration of the various affairs of man.

There is no calling or profession in which the motto, "Safety First," is of such profound significance as in that of surgery. The dangers attending operative surgery are so many, so insidious and so menacing; the practice of the profession so frequently and indeed so constantly involves the necessity of taking the patient to the very borderland between life and death, that every consideration of morality, of humanity, of justice, and even of self-interest and pride in achievement, requires the adoption of every safegard and precaution that is available.

The demand for this does not come from the public, which so confidently relies upon us, and which is, for the most part, comparatively ignorant of both the dangers and the means of lessening them, but it is none the less urgent and compelling because it is born only of our inner consciousness and our ideas of duty. And it is well for us to keep the suggested motto constantly in our minds.

To the cultivated members of our profession the few suggestions I propose to make will, perhaps, contain no new thought. They are neither novel nor startling; but they may be likened to those moral truisms which lose nothing of their truth by repetition and which cannot be too often called to mind.

The wonderful advance in operative surgery during recent years, which has been fairly well exploited, has to some extent allayed the layman's natural terror of "the knife," and has caused patients and physicians alike to more frequently and more readily seek desired relief by means of surgical operations. And the growing frequency with which requests are made by patients, and even by physicians referring surgical cases, for immediate operations, and the danger of careless compliance with such requests in all elective cases, is my excuse for directing your attention anew to a few well understood, but frequently disregarded, considerations which should govern in all such cases. If these considerations were more constantly held in mind by both physician and surgeon they would materially lessen the number of operative cases in which the results are disappointing.

In all elective cases presenting themselves for surgical operations, the pathological condition of the patient is the surgeon's first consideration.

Under modern methods pathological conditions may be elicited with reasonable accuracy. This requires, however, careful and painstaking physical examinations; the careful investigation of the patient's history and his family history; close inquiry into his habits of life; careful and repeated tests of the functional capacity of the different organs; the examination of the blood; the careful scrutiny and analysis of the secretions and excretions. All this naturally takes time; and frequently the examinations and analyses must be repeated for comparisons and for verification. But failure to make the investigations as to any one of these matters or conditions may be attended with grave risks which should not be needlessly incurred.

The many methods which have been devised for the scientific examinations of patients, involving the use of the numerous vaccines which have been discovered, the variously prepared blood sera, the chemical and microscopical laboratory tests, and the many ingenious instruments for the exploration and examination of the different organs of the body, are so helpful in diagnosis that they should be employed in all cases where it is possible to obtain their assistance. The precision with which one is enabled to determine a diseased organ by the use of these instruments and laboratory tests has done much to remove this

branch of our profession from the realm of mere speculation and has placed it much nearer that of the exact sciences.

Of course it cannot be expected that every practitioner can have at his hand all these scientific agencies, any more than every lawyer can expect to have all the law books in his own office. But even as the careful lawyer, whenever possible, seeks access to established libraries to supplement his own private equipment, so the careful diagnostician should, whenever possible, seek all the helpful appliances that may be available to his in established institutions, to supplement his own less perfectly equipped consultation room.

One who performs surgical operations only infrequently, and especially when he operates outside of regular and well appointed hospitals, in which it is mere routine to observe the precautions herein outlined, is apt to neglect these tests and examinations, or, at least, to minimize their importance. This is grave error. Such neglect, except in exigent cases, is a failure to properly prepare the economy for the trying ordeal of surgical procedure. It is a disregard of the motto, "Safety First."

If, upon the examinations and tests therein urged, there is disclosed serious disease of the organs, aside from the condition to be relieved by the operation, or if the blood is found to be seriously impaired, these conditions should be relieved first. Rest, diet, medication and even climatic treatment should be resorted to in the effort to restore normal conditions, as far as possible, before any operative procedure is undertaken.

It is difficult to conceive of degrees of care in matters so vitally important as anesthetization; but especial care should be observed by the anesthetist in cases where an organ is found to be diseased. And the surgeon should limit his operation to the very shortest time possible consistent with careful and thorough work. The strain of an operation upon a patient is severe at best; it is of course extra hazardous where it is levied upon organs weakened by disease.

As a rule, long continued treatment, preparatory to an operation, is to be avoided, if possible. Especially is this true where the treatment is given in a hospital where the mental condition of the patient is more likely to be disturbed by his unaccustomed surroundings. A short and simple preparation, which serves to put the kidneys, skin and alimentary canal in a state favorable for the elimination of waste products, is much to be preferred and will leave the patient in a more favorable condition for a surgical procedure.

It not infrequently happens in the practice of surgeons of wide experience that patients are referred to him for operation when he cannot discover the indication therefor; when the advisability of the operation

is doubtful, and, in some instances, even contra-indicated. Of course in all such cases wisdom and a proper regard for the patient's safety dictate that he should be referred to his physician for medical treatment and for further observation and investigation.

There is, perhaps, no profession in which special training, peculiar fitness and definite experience and personal skill count for so much as in that of operative surgery. There are scores of surgeons who daily perform the most difficult and delicate operations, for which they are especially fitted and trained, with almost uniform success. The same operations upon the same patients in the hands of less skilled and experienced surgeons would become much more grave; and would very probably be attended with less successful results. This is but another way of repeating the truism that all cases should be referred to surgeons of proved competency.

It is a well-known fact that many brilliant operations have been successfully performed under most adverse conditions and amidst very insanitary surroundings, and with inadequate assistants. Yet no careful surgeon would ever choose to operate under such conditions. Rather would he, very properly, refuse to do so except in the most exigent circumstances.

Every surgical procedure, so far as possible, should be conducted in a modern hospital in which a trained staff of assistants is maintained and which has a fully equipped operating room with an abundance of light and room and with the most complete arrangements for sterilization and prevention of infection. And above all, the surgeon himself should approach no operation until he has taken every possible precaution to render himself aseptic. The most perfectly appointed operating room, and the best equipped clinical assistants cannot prevent the septic surgeon from advertising his negligence by the suppuration in the patient's wound.

The trained anesthetist is an indispensable member of the surgeon's staff. He is the surgeon's "right bower." It follows that he should be selected with care; that he should be especially trained for his important service; and that he should possess especial knowledge of the proper anesthetic to be used in the various cases in which he serves. It is only upon such an expert that the surgeon can rely with confidence so that he may give his whole and undivided attention to his own special work in the operation.

The practice of performing multiple operations at one "sitting" has become a mere matter of routine work in many hospitals today. Yet it is a practice which is to be severely deprecated except in really urgent cases. A single operation is a severe strain upon the vital organs, and

this strain should not be increased if it can be avoided. In any event multiple operations should not be undertaken except after a thorough examination of the patient's ability to stand the specific extra tax upon his vitality. A disregard of this precaution generally leads to a lingering and tedious convalescence and frequently to real disaster.

I realize afresh, now, that I have concluded my brief paper. that I have brought you no new message. I am conscious of the fact that I have not presented the old matter in any new and attractive form. But my surgical experience has taught me the vital importance of every one of the elementary suggestions which I have presented to you, and I am content to hope that the repetition of such good, sound surgical doctrine cannot fail to be productive of some good. And I trust that it may lose nothing of its effect because I have adopted a subject more frequently heard in railroad circles than in medical society meetings. In my opinion it is more appropriate here than anywhere else, for I believe our professional slogan, in all diginity and seriousness, might well be—"Safety First."

DIAPHRAGMATIC HERNIA, WITH REPORT OF CASE.

STUART MCGUIRE, M.D., RICHMOND, VA.

Diaphragmatic hernia is the protrusion of one or more of the abdominal viscera into the pleural cavity through an opening in the diaphragm.

The opening may be a defect in development, a dilatation of a normal aperture, or a rupture due to traumatism. Therefore diaphragmatic hernias may be either congenital or acquired.

In ten per cent of cases the herniated mass is enclosed in a peritoneal sac, but in ninety per cent of cases the viscera lie bare in the pleural cavity, hence, in a strict sense, these hernias may be divided into true and false.

Diaphragmatic hernia, like hernia of other regions, may be classified clinically as reducible, incarcerated or strangulated.

According to statistics diaphragmatic hernia occurs on the right side in eight per cent of cases, and on the left in ninety-two per cent of cases. The relative immunity of the right side is largely due to the presence of the liver which acts as a buffer and protects the diaphragm on that side from the effects of increased abdominal pressure and closes effectively any rupture that may occur.

The abdominal organs most frequently found in a diaphragmatic hernia are the stomach, colon, small intestines and omentum in the order named. Almost every abdominal organ, however, except the

rectum and pelvic viscera has been found in one or more of the cases that have been recorded.

Diaphragmatic hernias are not common, but they occur with sufficient frequency to make it necessary to bear the condition in mind when making a diagnosis in an obscure case. At the time of the publication of Griffin's paper in the Annals of Surgery for March, 1912, six hundred and fifty cases had been reported, but most of these were either congenital hernias occurring in babies or symptomless hernias discovered at autopsy. According to Griffin, only fifteen cases of diaphragmatic hernia had been correctly diagnosed during life.

The recognition of the condition is based on a careful inquiry into the patient's previous history, especially with reference to injuries, on a thorough physical examination of the chest and on radiographic and fluoroscopic examinations after the ingestion of a bismuth meal. The conditions most difficult to exclude in making a differential diagnosis are pneumothorax and eventration of the diaphragm.

The treatment of diaphragmatic hernia is essentially surgical. While patients with the trouble have been known to live for years, sooner or later, they all develop obstructive symptoms, inflammatory complications or strangulation with gangrene.

Two exploratory routes have been recommended to reduce the hernia and repair the tear in the diaphragm: the thoracic and the abdominal. Those who favor the thoracic route claim that the adhesions can be more safely separated, that the diaphragmatic opening can be more easily sutured and that by the entrance of air into the pleural cavity the negative or suction power of the thorax is abolished so that replacement of the viscera is less difficult.

Those who favor the abdominal route claim that a considerable number of hernias can be reduced without opening the thorax, and that it is not wise to collapse the lung if it can be avoided, also that the viscera injured from strangulation are the abdominal organs and that they can be better repaired through an abdominal incision.

The following brief quotations from various authors will show the evolution of surgical opinion on the subject of diaphragmatic hernia during the last twenty-five years.

Holmes' System of Surgery, published in 1881, contains the following: "We are silent on the subject of treatment. We can not hope to close the aperture in the diaphragm by any measures which science or mechanical surgery would justify; could we accurately detect the existence of a protrusion it were in vain to attempt its reduction with any benefit to the patient or credit to ourselves."

Von Bergmann's Surgery, published in 1904, states: "Up to this

time no radical operation has ever been performed for non-strangulated hernia in this region, although an operation is indicated, provided the diagnosis is certain."

Ferguson, in his book, Modern Operations for Hernia, published in 1907, says: "The presence of diaphragmatic hernia is seldom discovered during life. In but seven of the two hundred and sixty-six cases reviewed by Lachner was the diagnosis made ante-mortem. If the hernia is incarcerated I believe the thoracic route the preferable one, but in a case where the hernia is inflamed, ulcerated, strangulated or gangrenous, when a resection of the bowel must be done, the thoracic insures less tendency to infect the peritoneal cavity."

Ochsner, in his Clinical Surgery, published in 1911, says: "Diaphragmatic hernias are very rare, and when they do exist, are seldom discovered before the abdomen is opened. The majority of cases that have been reported have been found post-mortem. Diaphragmatic hernia may be congenital or acquired. The congenital variety is rarely amenable to surgical treatment because so great a portion of the diaphragm is absent that it is impossible to close the large opening. The acquired variety may frequently be benefited by operation."

Mumford, in his book on Practice of Surgery, published in 1911, says: "The treatment of strangulated diaphragmatic hernia is obviously to open the abdomen and treat the viscera as the conditions indicate. Hitherto no operation is reported as performed upon a non-strangulated diaphragmatic hernia."

Binnie, in his Operative Surgery, published in 1914, says: "Of the cases of strangulated diaphragmatic hernia collected by Neugebauer, all those operated on through the abdominal route died; one out of two operated on through the thorax lived. The only two cases of non-strangulated diaphragmatic hernia submitted to radical cure (Llobet's and Cranwell's) lived after a trans-thoracic operation."

Doubtless some cases of diaphragmatic hernia have been operated on and not reported, and other cases have been operated on and recorded since the statistics quoted were compiled, still the total number of operations is so small that I felt justified in reporting the following case:

B. D. Male. Aged nineteen. Entered St. Luke's Hospital April 10, 1914. Referred by Dr. J. B. Catlett, of Staunton, Va. Patient stated that four months previously as he came out of a pool-room he met a man with whom he had quarreled earlier in the day, who struck him with great force in the epigastrium with a bottle. The blow knocked him down and his antagonist jumped on him and cut him on the left side of the neck, on the outer side of the left arm, and finally stabbed him in the posterior axillary line about the third intercostal space on the left side of the chest. The patient bled

profusely from the wounds, vomited blood and later passed much blood by bowel. The incisions were sutured without an anesthetic and the patient put to bed. For three days he was unconscious. He finally began to slowly improve, but for three weeks he could take no food by mouth and had to be sustained by nutritive enemata. He then became able to swallow and retain liquids. If he attempted to eat solids, however, he experienced a sensation as though the food stopped before it reached the stomach and he would spit or vomit it up shortly after swallowing it.

When the patient was brought to Richmond he was very weak and anemic and had lost about fifty pounds in weight. Physical examination of the chest showed the heart markedly displaced to the right and a tympanitic percussion note with absence of breath sounds from the fifth rib down on the left side. An attempt was made to pass a stomach tube but it met with a complete block 17½ inches from the incisor teeth.

A mixture of bismuth and buttermilk was given slowly and after about eight ounces were introduced into the stomach several radiograms of the abdomen were made by Dr. A. L. Gray, reproductions of which will be shown later by lantern slides. The history, symptoms, physical examination and X-ray findings all pointed to diaphragmatic hernia, with escape of practically the entire stomach into the left thoracic cavaity.

An operation was advised and agreed to. It was determined to adopt the transpleural rather than the abdominal route as the hernia had been in existence four months and it was believed that the adhesions between the stomach and the viscera of the chest were so strong and numerous that they could not be safely separated except under direct inspection.

The patient was placed on the table in the reverse Trendelenburg position in order to minimize the possible shock from the sudden admission of air into the pleura.

The incision was made after the method suggested by Cranwell. The lower and lateral part of the thorax was opened by a flap having its base above, consisting of the whole thickness of the chest wall and containing about five inches of the eighth and ninth ribs. As soon as the parietal pleura was opened the stomach presented itself. There were numerous adhesions between it and the pericardium and collapsed left lung. These were carefully separated, several attachments requiring preliminary ligature.

A very dense and firm adhesion was found between the cardiac end of the stomach and the postero-lateral surface of the chest wall just opposite the stab wound. This was peeled loose after considerable effort and there was at once the escape of some stomach contents. The stomach was delivered through the opening into the thorax and an incision three inches long found on its anterior surface beginning near the esophageal opening and extending in the direction of its greater curvature. The edges of this incision did not bleed and showed evidences of cicatrization, hence it seems reasonable to believe that the rupture of the diaphragm and hernia of the stomach resulted from the blow and injury inflicted on the abdomen prior to the cutting, and that when the stab wound was made in the third intercostal space the vulnerating instrument cut the stomach, which was already in the left thoracic cavity.

The opening just described in the stomach was sutured in the usual way and then the adhesions to the stomach where it passed through the diaphragm were separated, and the stomach replaced in the abdomen.

The rupture in the diaphragm was about four inches in length, beginning near the esophageal opening and extending through the left leaf towards the sternum. The tear was repaired with two tiers of chromic cat-gut sutures. A rubber drain was then placed in the pleural cavity and the opening in the chest wall closed. The operation while spectacular was not difficult and was completed in fifty-five minutes. There was little bleeding and no appreciable shock. The patient did not suffer from nausea, and begged for a cigarette as soon as he became conscious. Liquid nourishment was given the following day. At the end of a week the patient was placed on general diet and from the first swallowed and retained solid food without difficulty.

He gained weight at the rate of a pound a day and left the hospital in four weeks after the operation. A radiogram taken just before the patient was dismissed showed the stomach in its normal position, the heart almost back in its proper place, but the collapsed lung not yet fully expanded.

REPORT ON MY FIRST TWENTY-FIVE CASES OF BREAST CANCER.

R. L. Payne, Jr., M.D., Norfolk, Va.

The following report covers 26 cases of breast cancer operated between July, 1906, and July, 1911. This would make the time since operation range from three to eight years. One of these cases died on the sixth day after the operation from pneumonia. Therefore, I shall eliminate this case, as it would have no value from the viewpoint of operative cure, and make this a statistical report of 25 consecutive cases.

In the past three weeks, I have had authentic reports from all these cases, either from the patients or from the families of those not living. The operative technic was practically the same in all cases. The skin incisions varied according to the involvement, the balance of operation consisting of, first, a careful dissection of the axilla (no matter how small the growth), next both pectoral muscles with fascia and last the breast with growth. Effort is made to incise well into healthy tissue and every precaution taken against squeezing and compressing the gland, lest cancer cells be planted into the fresh wound. A stab wound is made for drainage, and after the usual gauze dressing there is applied, in the manner of a bandage, a gauze roll ten inches wide and seven yards long. This roll is especially serviceable when the skin wound extends on to the shoulder or arm. On account of the shock usually attendant on these operations, we particularly recommend and always use gas-oxygen anesthesia.

The arm is left bare and the patients are made to sit up if possible within the first 24 hours. At the expiration of about the seventh day the wound is exposed to the X-ray at different angles, over a period of

a few days until a full dose is given. This is repeated in three weeks and then the same procedure once every month for the succeeding twelve months. This post-operative X-ray treatment I consider equally as important as the surgical removal and the patients are so instructed before operation. In evidence of its importance, three patients who refused to return for these periodical exposures died within a period of eleven to twenty-one months, while of the entire series only two more are now dead.

The age limit varied from 15 years to 71 years, there being one case in a male at 15 years, two cases between 20 and 30, ten cases between 30 and 40, eight cases between 40 and 50, three cases between 50 and 60, one between 60 and 70, and one case at 71, now living three years and two months after operation.

With regard for post-operative sequelæ, three cases had severe pain in the shoulder of operated side lasting about six months and simulating a neuritis. Two of these complain now at intervals of the same pain. One case has permanent swelling of the arm which appears to be a chronic lymphœdema and resembles elephantiasis. Two other cases report slight swelling at times, especially when using the arm very much. Otherwise, the cases do not seem to suffer from any functional loss in the arm of operated side.

Again referring to the X-ray, one case 36 years old taking the X-ray exposures had a very small return in the line of scar at the third month after operation. This was promptly removed and the ray vigorously applied with the result that this patient is now living three years and nine months without signs of return and is taking a full dose of four Holdsnech Units every three months. In contrast to the age and treatment of this last case, there is one case 71 years old who had a similar removal and a small return two years and two months after operation. This was removed by another surgeon and she is now living three years and two months without return and without having had any X-ray exposure since the last removal.

The fifteen-year-old case was in a male who had a small proliferation at the seventh month in the line of the scar which was doubtfully cancer. This was removed, the X-rays kept at intervals to date and he is now apparently well, three years after operation. While the most of my cases come early, yet I found eight who had glandular involvement at the time of operation. In proof that this condition is not always hopeless, one case, age 31, had a growth which extended in the skin on to the sternum and had palpable glands in both axillæ. The operation was undertaken only as palliative, but with the X-ray following; this patient is now living, three and one-half years after operation.

There were no cases of cancer in the lactating breast. We have always abstained, if possible, from simple excision for diagnostic purposes or otherwise, but there are two cases in this series who had simple excision with radical operation later who are now living, five years and three years after complete removal. Upon one of these we did a simple excision and a radical ten days later. The other was operated by another surgeon and came to us for radical removal six months later.

To summarize: Out of the twenty-five cases, twenty are now living over three years. Four of these are now known to have returns and sixteen are living and free from returns. This shows 80 per cent living and 64 per cent free from returns for a period of three years or more.

There is no doubt that some cases, though similar, are more malignant than others, this, we think, being due to an inherent tendency of the individual to have normal structures go astray.

Recent recurrences, we believe, are due to incomplete operation or living cancer cells left at time of operation. The immediate and early use of the X-ray, we believe, has helped to overcome this disaster. Late recurrences are due to the inherent cancer tendency, the disposition for normal structures to go astray.

DISCUSSION.

Dr. Addison Brenizer, Charlotte: I heartily endorse Dr. Payne's paper in regard to the cancer of the breast. I think that with the X-ray exposures, there have been marked improvements in the cure of this disease. I believe, also, that there would be no harm in inserting cocaine, followed by immediate operation. The object should be to eradicate the cancer cell itself.

Dr. William Seaman Bainbridge, of New York: Being called upon by several to take part in the discussion of this paper, responded as follows:

The writer is to be congratulated upon this excellent paper. Results are what count, and he has certainly had very satisfactory results in the series of cases which he reports. The statistics in operative treatment of mammary carcinoma vary greatly, and many are not so encouraging as those we have listened to today. It is well recognized that the stage of the disease when surgical treatment is employed very largely influences the question of recurrence and metastasis, but the very wide difference in the results obtained by some operators as compared with others cannot be accounted for alone upon this ground—technique, in my judgment, is a very active factor in determining the question of recurrence; the manipulation of the breast, before or during the operation, may set free cellular elements of disease which make certain a recurrence at a

distant point, which no radical operation, no matter how skilfully done, will prevent. Certain experiments upon animals have proved the truth of this assertion—Drs. Ordway and Tyzzer of Harvard Cancer Hospital recently gave a report at Washington, which shows conclusively the damage that may be done to the patient by repeated examinations and manipulation of the breast prior to operation: if this be true, as is so clearly set forth by their report, it must also be true that during the operation itself the diseased area should not be manipulated until cut off from avenues through which the cells may pass from the local seat of the disease to distant parts.

The second point I wish to emphasize is the importance of removing enough of the fascial extension from the breast: Since Handley's work at the Middlesex Hospital in London and his paper before the International Surgical Congress at Brussels six years ago, operators have paid special attention to the fascia and not so much to the skin. Rodman is on record as stating that the removal of a breast for cancer without the removal of the fascial extension and anterior layer of the sheath of the rectus muscle well down at least half way to the umblicus is not a thorough operation. In connection with this it is interesting to note that Halstead of Baltimore practically always removes enough skin to necessitate grafting; Watson Cheyne, of London, rarely removes enough to necessitate skin grafting, yet Halstead's statistics show more recurrences in the skin than do those of Watson Cheyne: practically the only difference in the technique of the two is that Watson Cheyne takes away great masses of fascia that extend from the breast over a much larger area than does Halstead: this would seem to confirm the claims of Handley in relation to the fascia.

The third point I wish to make is that we must always keep in mind that cancer is auto-transplantable and that any instrument that enters cancerous tissues may be infective in the same host. In the interests of the patient, I believe it is well for the surgeon to cut around the mass in the breast as if it were extremely infective, and without manipulation at all stages of the operation—the disease should not be cut into or nature's barriers invaded. If it is insisted upon that a piece of the tumor be examined before the operation, then the operation should follow immediately upon microscopic examination of the frozen section, and with the utmost care, there will still be a chance of danger, which the removal of the whole breast and examination afterwards does not entail.

LUDWIG'S ANGINA.

J. T. Burrus, M.D., High Point, N. C.

Because of the severity of the infection associated with the gravest kind of clinical symptoms, and because of the high mortality in this condition, I invite your attention for a few minutes, to the consideration of Ludwig's Angina.

My experience with this disease is limited, having seen only seven cases in fifteen years. Five of this number died. Two recovered. The symptoms as presented were almost uniform. A severe pain in and about the submaxillary gland, radiating to the deep throat muscles, the sternum, the floor of the mouth and base of the tongue. This is preceded by a severe chill, followed by a very high temperature, and a rapid pulse rate, dyspnea and dysphonia, a difficult deglutition. On the second day the symptoms are more severe, with an increased tenderness over the area of infection, which rapidly extends to the deep tissus of the neck. There is locally redness, tenderness, swelling, and great rigidity of the tissues almost board-like in character. The temperature does not continue high after the fourth day to the tenth day, but will drop to almost normal, remaining so for a few hours, and then take a rapid rise to 104 or 105 degrees F. After a few hours again the fever subsides. The toxic symptoms are marked, the patient giving every evidence of a very great toxemia.

The symptoms become more severe until the patient succumbs either to the toxemia or the dyspnea. The bacteriological findings in our cases, as reported by Dr. Hiatt, have shown staphylococcus and streptococcus infection. The differential diagnosis has been from Vincent's Angina and submaxillary periostitis. In Vincent's Angina symptoms are always associated with an ulcer in the pharynx or posterior fauces, symptoms not so severe, fever not so high, or pulse rate as fast, toxic conditions not so marked, swelling more posterior, mouth can be opened, very little edema, no hardening of the peri-cellular tissue of the neck, not so much dyspnea, and there is always found the spirilla of Vincent in the oral mucus secretions.

In submaxillary periostosis the onset is more gradual, swelling extends up over superior maxillary bone and the process is external to the dense submaxillary fascia. There is local tenderness confined to the area of infection.

The tissues do not present such hardened appearance, there is very little difficulty in swallowing or breathing, the toxic symptoms less pro-

nounced. There is no bulging of the submental tissue, or protusion of the tongue.

I attribute our high death rate to two things. First, the first five cases were treated effectantly, the real condition was not recognized, and second, the cases that have been referred came in too late to offer any relief owing to the profound toxemia which existed at the time the cases were taken into the hospital. Every one of these cases have given a history of having a tooth extracted previous to the onset.

Would it not be well to advise our dental brothers of the importance of doing his extraction with sterilized instruments? I do not wish to charge a dentist with any neglect along this line, for I am sure they are cognizant of these facts, but we are prone to neglect well known principles and proven facts.

However, I am forced to conclude that every one of my cases were infected by way of the oral mucus membrane, and this infection most probably came from unsterilized tooth-forceps.

Treatment.—At once under every antiseptic precaution, make a thorough opening, and drain the neck tissues. If we temporize in this condition, the mortality will be 100 per cent. And, on the other hand, if we get the case early and drain thoroughly there should be a low mortality. The cases we have been able to save have been treated in this way: A curved incision along anterior border of sterno cleadore mastoid muscles to the omo-hyaid muscles, thence to the mentum along said muscles, the flop was dissected up and the deeper tissues of the neck drained. In these cases we found the central pus-jacket at the bificoliar of the Cannon carotid artery. A drain through the trapezino muscle to the back of neck and posterior to the sterno mastoid muscle. Several anterior drains were also instituted.

RUPTURE OF KIDNEY FROM EXTERNAL VIOLENCE—REPORT OF A CASE—OPERATION.

H. McKee Tucker, M.D., Raleigh, N. C.

Rupture of the kidney is a very infrequent and rare accident, therefore of unusual interest, for which reason I decided to report a case that was referred to me for operation.

The injury is much more frequent in men than women on account of their being more liable to accidents, but even in these it so seldom happens that the great majority of doctors go through their medical career without ever seeing a case. Therefore I shall briefly summarize the more important points of the etiology, pathology, symptomatology and treatment before reporting the case referred to.

Etiology.—Direct blows over the loins, and less often falls and jars are the usual causes of external repture of the kidney.

Pathology.—Injuries of the kidneys and their coverings vary from a slight tear to a pulpifaction. The tear may involve the capsule with or without injury to the kidney substance. The more remote the tear is from the pelvis of the kidney, the less the hermaturia. The lacerations are more frequently found on the anterior surface of the kidney and may extend in any direction. Numerous tears running to the pelvis of the kidney may completely separate portions of the kidney from each other.

Symtomatology.—The symptoms may be divided into general and local; primary and secondary. Primary general symptoms are similar to those of other injuries exhibiting shock.

The onset of the symptoms of shock may occur soon or not until some hours after the accident.

The primary local symptoms are pain, swelling, tenderness and hematuria; the latter being the most constant In some cases the urine is slightly smoky, while in others the hemorrhage may be so profuse that the bladder becomes filled with clot, even causing a suppression of urine. In some cases even in extensive tears the hematuria may be slight, on account of the peritoneum being torn and the blood escaping into the abdominal cavity.

The hematuria may disappear in twenty-four hours or persist for three weeks longer.

The secondary local and general symptoms by reason of the infective or reactional processes are due to changes in the renal substance, the peri-renal and connective tissue particularly, producing perinephritis or peritonitis. In the kidney itself subsequent abscess may form or a non-suppurative chronic inflammation may develop.

Treatment—This should be divided into primary and secondary:

In those cases of slight hematuria, of limited swelling and the absence of the symptoms of general shock, the patient should be put to bed, the part strapped and, if necessary, anodynes should be given to relieve pain.

It is very doubtful if medicines will diminish the bleeding, not even adrenalin chloride. In order to avoid nephroptosis the patient should be kept in bed for at least three weeks.

In these cases where the shock is severe, and the hemorrhage profuse, an operation should immediately be performed.

Of course it will be impossible to decide just what operation should be done until after the kidney is exposed. When this is done you

should, according to the degree of injury, decide to either take the kidney out, or sew up the lacerations.

Nephrectomy should be done when the kidney is hopelessly destroyed or in case the operation is a late one with much inflammation present.

In those cases where the lines of laceration can be fairly well brought into apposition they should be sutured after tying off the bleeding vessels with catgut and removing any part that is too much damaged, in such cases doing a partial nephrectomy. In case the ureter is blocked the pelvis of the kidney should be drained.

The following is a brief history of a case referred to me by Dr. Griffin, of Clayton, N. C.:

Personal History.—Name, I. W. Harrison; residence, Clayton, N. C.; race, white; age, 30; married.

Past History.—Has had most of the diseases of childhood; some malarial attacks, but none for the past year. Has drank whiskey off and on for most of life.

Present History.—While in an argument and under influence of whiskey was struck over right loin with a baseball bat.

Patient was carried home, suffering much pain. I could not ascertain how much shock was present or when it began, as he did not send for his physician until the next day. At that time his pulse was rapid and weak; his skin was pale; his urine very bloody and he was suffering great pain.

On palpation he was very tender over back and front of kidney. Finally so much blood clotted in his bladder that he was unable to void his urine. Dr. Griffin found it necessary to remove this blood through a catheter by means of the vacuum of a strong hand syringe, as it was impossible to get the urine to flow through a catheter which would always become filled with a clot of blood. His pulse became less rapid but continued weak, and his skin more bleached. A marked hematuria was still present at the end of ten days when he finally consented to come to Rex Hospital; the diagnosis of ruptured kidney having been made by Dr. Arthur Griffin, who referred him to me for operation.

Findings at Operation.—The tissues which were cut through were found to be edematous, and blood had extravasated around the kidney. The kidney when exposed was found to be ruptured longitudinally from above downward for about half its length and below this were two transverse tears. I decided it was best to remove it and did so—leaving a cigarette drain in wound.

August 25th. Two hours after operation, the axillary temperature was 95, pulse 100, resp. 26. August 26th. Highest temperature was 102°, pulse 106°, resp. 22.

August 27th, at 12 o'clock. Temperature 103 1-5, preceded by a slight chill. A pale, sanguineous discharge continuing since operation.

August 28th. Temperature 101 4-5, pulse 106.

August 29th. Temperature 100 3-5 at 10 a. m.; 103 2-5 at 6 p. m., preceded by a chill.

August 30th. Temp. 10 a. m., 100 2-5, pulse 80; 10 p. m., temp. 102 1-5, preceded by a chilly sensation.

August 31st 10 a. m. Temp. 99 1-5, pulse 80; 10 p. m., temp. 100, pulse 90.
September 1st, 10 a. m. Temp. 98 3-5, pulse 78; 10 p. m., temp. 100 2-5, pulse 80.
September 2nd, 10 a. m. Temp. 98 2-5, pulse 78; 10 p. m., temp. 99 2-5, pulse 80.
September 3rd, 10 a. m. Temp. 98 3-5, pulse 98; 10 p. m., temp. 104, pulse 108, preceded by a chill.
September 4th, 7 a. m. Temp. 104, pulse 124, preceded by a chill.
September 5th, 6 a. m. Temp. 98, pulse 80; 10 p. m., temp. 98 2-5, pulse 82.
September 6th, 10 a. m. Temp. 98, pulse 80; 8 p. m., temp. 99 4-5, pulse 86.
September 7th, 2 a. m., temp. 102, pulse 106, preceded by a chill; 10 p. m. temp. 100 4-5, pulse 80.

After this the temperature, etc., continued normal until patient was discharged, making in all twelve days of irregular temperature. The points of interest in the convalescence were the temperature and chills, the elevations showing no periodicity either in days or hours of occurrence. On some days there would be as many as two chills with exacerbations of temperature. Some of the chills were mild and others hard shaking rigors.

The examination of the blood for malaria was negative; however, on the 5th, quinine was given. There was no other chill or rise of temperature after the quinine was begun, except on the 7th.

There was never any pus in the drainage.

FRACTURED NASAL BONES AND SUBSEQUENT DISEASES.

M. R. Gibson, M.D., Raleigh, N. C.

I have selected the subject, "Fractured Nasal Bones and Subsequent Diseases," because it is a subject that should interest every physician; it is the neglected fractures that cause the subsequent diseases, and these are often the first to have sufficient symptoms to attract the attention, with any degree of seriousness, of the patient—the fracture or dislocation having passed unnoticed.

The fact that this primary condition did not seem of sufficient trouble to consult the family physician, or maybe the physician was called and found patient comfortable and he did not consider the injury sufficient to make a thorough examination with speculum, is the cause of a condition that can now be remedied only by doing a major operation, while if more care and immediate attention had been given the patient when he had his accident he would have avoided having to undergo the sad experience of such an operation and would have preserved a much more physiological nose than can possibly be given by doing the subsequent operation or operations, as is often the case.

I will mention the anatomical relations of the nasal bones so that we will see at once what these fractures and their complications might mean to our patients.

The nasal bones articulate with each other in middle line, nasal process of frontal bone above, frontal process of maxilla on either side; inferior margin forms superior boundary of anterior nares and gives attachment to the cartilaginous nasal skeleton.

Owing to the close relation of perpendicular plate of ethmoid, cartilaginous septum, superior maxillary, and frontal bones and the relation of these to the ethmoid cells, sphenoid sinus, lacrymal bones, and vomer, we at once see that fracture of nasal bones may mean far more than disfigurement of the face.

The fractures and their complications are dependent upon the direction from which the blow comes—when from below the septum is often involved without fracture of nasal bones, or may have dislocation of cartilaginous nasal septum and fracture of nasal bones, or simple dislocation of nasal bones and cartilaginous septum. It is the blows from below that produce the simple dislocation of nasal bones without fractures oftener than force from any other direction.

When blow is from in front and with force the nose is flattened, and in these cases the nasal bones and septum, both cartilage and perpendicular plate, are involved.

When the blow is from the side we may have a dislocation of nasal bones and fracture of nasal septum, or the nasal bones may remain intact and the septum receive the greatest injury.

The injuries referred to are the most common and the manner in which these usually occur are as stated.

We can readily see, when there is right much swelling, how easily a dislocation of both nasal bones and cartilage can be overlooked unless the nasal speculum and probe are used. The septum may not show at time of injury to be deviated very much out of line, yet with the slight deformity, which is so often found at juncture of perpendicular plate of ethmoid and cartilage, and the low grade of inflammation that will be most certain to follow in cases that are not properly treated, we will find in the course of six months or a year a decided deflected septum, which may be the cause directly or indirectly of any one or more of numerous pathological conditions found in the nose or its accessory sinuses.

From a majority of the patients who come to the nose specialist for treatment, and deflected septums found, a history of injury to the nose can be gotten from either the patient or his parents.

When we stop and think of the patients we have had complain of an injury of the nose and we did not make a thorough examination to ascertain if its function was impaired, we are obliged to realize that we have discovered at least one of the causes of so many diseases affecting the respiratory tract.

Asthma may be caused by a condition of the nose brought on by fractured nasal bones or one of its complications. The spheno-palatine ganglion, which is a ganglion on nerve ending of fifth nerve, supplies a large part of the nose, and the fifth and tenth, or vagus nerve, are connected by association fibres, and by irritation of the nose sensations are carried to the thorax through the fifth and then the vagus and asthma brought on in this way.

No case of asthma is properly examined until a most thorough examination of the nose is made.

Ethmoiditis may be caused by the encroachment of septum upon turbinates and these upon ethmoid cells, thereby causing irritation and interfering with ventilation and drainage; and the same process may ensue relative to sphenoid sinus; and when either of these, posterior ethmoids or sphenoids, become purulent the inflammation may extend to the optic nerve or to other parts of the eye and materially interfere with its function.

It is sufficient to say that, in addition to curing the conditions mentioned by proper and efficient nasal surgery, pharyngitis, chronic tubal catarrh, sinusitis, are often cured by nasal surgery that will give to the nose all its physiological functions.

I wish at the beginning of my section on treatment to emphasize the importance of early treatment, and treatment not with the sole view of giving good cosmetic effects, but of maintaining normal anatomical relations and preserving tissue and thereby restoring to the patient an air passage that possesses the same physiological functions as the normal nose.

First of all, either an anesthetic should be given or a thorough cocainization done, and by the use of nasal speculum for observation, submucous elevator for counter pressure and manual manipulations externally the fracture can be reduced. Should there be dislocations, deviation or fracture of septum same should be corrected at this time.

The support which should be used within the nose varies according to the extent of the fracture; there should be a firm pressure made opposite fracture, and gauze is sufficient for this purpose. Special attention should be paid the septum and surgeon should be certain that it is left in middle line; and should there be submucous hemorrhage a

firm packing against this should be made so that it will become diffused and readily absorbed.

Guttapercha and Burnary's splints make good nasal dressings for the class of cases I am referring to, but they are not accessible to the majority of members of our Society. Adhesive strips are usually sufficient for external correction, and especially so if reduction has been made accurately and internal nasal packing has been done properly.

Not only should we correct the acquired nasal obstructions, but congenital deformities and those of childhood should receive immediate attention. The deformities will be found oftener in white children than in those of the negro race, a fact which is due to the more contracted white female pelvis and the frequency with which delivery is by means of the forceps.

No routine treatment can be given for these cases, but each treated with the view of giving space for breathing and establishing ventilation and drainage and preservation of tissue.

DISCUSSION.

Dr. W. Perry Reaves, Greensboro: About the only difference in my treatment of nasal fractures and Dr. Gibson's treatment is that for the past four years I have been setting the fracture and, in those cases where the nose was out of line before the injury, endeavoring to mould the nose to a better shape—also the septum. I never pack the nose on both sides, but occasionally put a little tampon high up on the closed side. Externally, adhesive will aid in support.

If the patient will keep his hands off and not turn on his nose at night it will stay in place.

In those cases where you want to improve the cosmetic effect, on the fourth, sixth and eighth days cocainize the nose and reshape it. By this time the plastic union of the fracture aids in the mouldings and it is remarkable how much improvement you can make on a nose that is out of line.

Several of my cases were glad of the accident that has given them a better nose.

A VISIT TO THE HOSPITALS AND SURGICAL CLINICS OF NORTH CAROLINA.

Joseph Graham, M.D., Durham, N. C.

Having made several trips to the large hospitals of northern cities, I decided that I ought to visit the hospitals of my own State and see how, situated even as I am, they were meeting their daily problems.

Therefore I have had the pleasure and privilege of visiting practically every large hospital in North Carolina. I take this means of expressing my gratitude and appreciation for the very kind reception tendered me. The trip was not only a pleasure but of inestimable value to me in my work.

The hospitals of North Carolina have been practically rebuilt during the past ten years.

The surgeons working in our North Carolina hospitals are all in love with their work and with humanity. They give to charity freely of their skill, their time and sometimes their money, too. They are operating to get their patients well and they are accomplishing their purpose and deserving the confidence bestowed upon them by their fellow citizens.

Almost every town in the State boasts a new hospital. The citizens of Raleigh, Durham, Greensboro, Salisbury, Charlotte, Asheville, Statesville, High Point, Goldsboro, New Bern, Kinston, Winston, Fayetteville, Washington, and many other towns point with pride to their new hospital buildings. As a surgeon I can point with pride to the work that the members of this Society are doing in these institutions. Our hospitals vary in size, in architecture, in endowment and in many other particulars, but they do not vary in the loyal support given them by the medical profession. Nowhere in the world can a poor unfortunate receive more loving, humane, skillful service than from a surgeon working in our smaller hospitals, who shoulders the entire responsibility for his results. He alone, and not the hospital, bears the blame. This personal responsibility—personal relationship—makes the surgeon and the hospital give better service than is received by the average patient of the large hospital.

I find the work of the North Carolina hospitals and surgeons fully advanced with the leading northern institutions. Our men possess wonderful common sense and while they are not always first to adopt innovations we are never the last to do so. We possess real ability in working out the chaff from the wheat. It has been said that we have no Mayo in North Carolina. This may be—we may have no one prominent man—they are all good, they all average up well. One of the reasons our surgeons are producing such good results is because they were good doctors before they became surgeons. Therefore they are able to develop *real* surgical judgment, and judgment is the greatest asset of surgical experience.

I find the men in this State doing splendid surgery either in or out of hospitals. They know the true surgical principles and they apply these principles to the case in hand, whether it be in a hospital or a backwoods cabin.

In every hospital in North Carolina I find the same purpose uppermost in the surgeon's manner and action—"safety first." The constant purpose is to make the operation safer and to lessen the unpleasant features of the ordeal. There is no hurry, the diagnosis is complete, and embraces the heredity and whether the bowels have moved, even if it does sometimes leave out the leucocyte count. But kindness and gentleness are never omitted. Our hospitals deserve the name "Homes for Sick People."

While much of the progress and advancement of surgical practice in North Carolina has been due to the untiring efforts of the surgeon himself, even more has been accomplished by the work of our general practitioners. It is to the family doctors that our results are largely due, for their thorough study of their cases and early diagnoses. Nowhere in the world is there a prettier or more efficient relationship than that existing between the surgeons and physicians of North Carolina. This relationship represents perfect "teamwork," every shoulder is to the wheel, "all together" for the best interest of the patient. Consequently the operations are well planned and skillfully executed and the after treatment is conducted by real physicians according to the symptoms exhibited, and not according to routine or experiment. The work of North Carolina hospitals, surgeons and specialists deserve your aid and encouragement. Every citizen of North Carolina, be he rich or poor, white or black, has full reason to be grateful for the service rendered by the surgeons and hospitals of North Carolina.

DISCUSSION.

Dr. J. T. Burrus, High Point: For a number of years it has been my privilege and pleasure to visit the hospitals of North Carolina. Not only have I visited the hospitals of North Carolina, almost every one of them, but I have had the pleasure of seeing some as good work and some as thorough work and some as deep work done in these North Carolina hospitals as I have ever witnessed anywhere.

In this day of medical interests, with our medical colleges in a close combine, and realizing that we are on the verge of being closely scrutinized and inspected, it is well that we should consider our hospital arrangements. I do not think it matters so much about the school that the man receives his education from, as it does about the man. I do not think it matters so much about the hospital in which treatment is received, as it does that the patient receives the very best treatment and recovers. The thing that we need most in North Carolina is cooperation. The doctors in every community should establish a satisfactory organization where they could eliminate the lesser things of life

and the little things and have the medical profession as a whole step upon a high Christian plane and lay aside the little frivolities. If this were done, I am amply persuaded that we could give treatment with as much ability as any organization. I know how difficult it is to run a small hospital.

Knowing it as I do and having paid the price with bloody sweat, I am forced to believe that Shakespeare would have been as great a man in any other country as in his own; that Washington would have been as great a man in any other country as in his own. We can have no hospital that goes beyond the willingness to work to render good service. I believe if we were to do this, we would feel more like true North Carolinians.

Dr. Wm. Seaman Bainbridge, New York: I have only had opportunity to see one hospital in the State of North Carolina, that being Dr. Burrus' new hospital at High Point, and if the others throughout the State are as well equipped and as well manned as the one in question, where I had the pleasure of operating yesterday, I would congratulate North Carolina on the high standard of its hospitals.

HUMAN PLUMBING—AMELIORATION AND CURE OF CHRONIC INTESTINAL STASIS.*

William Seaman Bainbridge, A.M., Sc.D., M.D., New York City.

In the matter of human plumbing the field of the physician, the physical educator, the dietitian, the belt maker, and even the corset fitter, may be more extensive than is that of the surgeon.

Lane, the great leader in more than one department of medical and surgical science, has stated that nine-tenths of all cases of the condition to which he has applied the term "chronic intestinal stasis," should never reach the surgeon if proper attention be given in the line of rational prophylaxis and early treatment. I would go still further and say that perhaps nineteen out of twenty cases should be cured without surgical interference. There are, however, many cases in which, through neglect, improper treatment, or from the presence of other conditions, intelligent surgery must be brought into requisition in order to forestall chronic invalidism, or to obviate an unfortunate waste of time and even the sacrifice of life.

It is a deplorable fact that in the majority, if not in all cases of chronic intestinal stasis which reach the surgeon, the patient is a

*Stereopticon clinic, illustrating different phases of chronic intestinal stasis. The paper in full, together with the illustrations, will appear in the Journal of the Medical Society of the State of North Carolina.

physical and nervous bankrupt, and a very poor surgical risk. A better understanding of the mechanical causes of the condition must, it seems to me, lead to a material decrease in the number of cases which eventually reach the operating room.

Before the Western Surgical Association, at the meeting held in St. Louis, in December, 1913, I described fully the various "bands," "folds" and "veils" which are concerned in the production of chronic intestinal stasis, and discussed the different theories as to their etiology. These causes, according to different observers, may be classified as (1) Congenital; (2) Inflammatory; (3) Evolutionary; (4) Internal Secretions; (5) Essential Patency of the Ileo-secal Valve.

Without discussing the relative merits of these different theories concerning the etiology of these adventitious intra-abdominal structures, I may say that the mechanical or evolutionary theory of Lane seems to me the most plausible, and the one which most nearly accounts for the various conditions found in the study of cases of chronic intestinal stasis. It is therefore to the significance of the "evolutionary bands" described by Lane that I would direct particular attention on this occasion.

The doubt which, eight years ago, existed in the minds of the majority of surgeons concerning the existence of these bands seems to have been completely dispelled by the continued brilliant work of Lane, and by the efforts of those who have followed his lead in the study and treatment of these cases.

The dominant idea which Lane has ever had in mind, in studying the cases which have come to be known under the diagnostic term of chronic intestinal stasis, was to work back from the widely divergent manifestations which we now consider to be the symptom-complex of stasis, to the underlying cause or causes. At the same time, naturally, he was working in the opposite direction, from the abnormal intra-abdominal manifestations which have come, carelessly, and without his approval, to be known as "Lane's bands," and "Lane's kinks," to the possible pathological effects produced by these.

Thus, by recognizing the existence of these pathological structures within the abdomen, studying their pathogenesis, tracing their relationship to a wide variety of pathological manifestations, and developing a system of preventive and correctional measures, Lane has pointed the way to a new field for exploration, a new territory for useful endeavor.

Having worked with him on my various visits to London for several years, having studied his cases before, during, and after operation, having repeatedly seen his hypothesis with reference to the existence of these causative factors in the production of chronic intestinal stasis

verified upon the operating table, and having substantiated his findings in a large series of my own cases, I have tried to follow his example in studying these conditions as a whole, and not fixing attention upon this or that particular point. It seems logical, therefore, to consider all these intra-abdominal abnormal structures, whatever their origin or their situation, as parts of the great whole, as possible factors in disturbing the body drainage in the production of chronic intestinal stasis.

According to Lane's theory, in the erect posture assumed by man, there is a general tendency to visceroptosis. This dropping of the abdominal organs gives rise to stress and strain, upon the mesentery and its attachments, in certain directions, and nature attempts to offset this state of affairs by the formation of practically bloodless, "evolutionary bands," for the purpose of supporting the viscera and preventing the ptosis. In this instance, nature's plan has miscarried, to a certain extent, and in the process of development, the unequal strength of these evolutionary bands in different parts leads to unequal support throughout.

As a consequence of this unequal support, the bowel is held up firmly at some points, and is allowed to sag at others. The result is an angulation or kinking at the point of support.

The basis of intestinal stasis, therefore, is a mechanical one, the chief factor of which is the abnormal fixation of a given point in the length of the intestine, with a dropping of the tube on either side of this fixed point, thus producing a kink.

It is with these mechanical changes, without regard to whether they are hereditary, congenital, "toxic," or "evolutionary," that surgery has to deal.

The more severe types of cases, those which call for surgical interference, may be classed according to the particular part involved and the treatment required, as follows: (1) Misplaced appendix; (2) Ileal kink; (3) Duodeno-jejunal kink; (4) Kinking at the hepatic and splenic flexures of the colon; (5) Kinking at the sigmoid loop; (6) Kinking at different points, extreme cases, with many bands and diverticulitis. These are briefly considered.

Misplaced appendix.—Displacement and kinking of the appendix occurs in some cases, particularly in the presence of "cecum mobile." In such cases the appendix acts as a ligament, twisting the cecum and pulling it downward. The cecum, in such cases, should be anchored in proper position. The stasis which results from slight misplacement and kinking may be relieved by the removal of the appendix and the correction of the kink. In severe cases, in which the kinking of the

appendix is associated with kinking of the ileum, the symptoms are relieved by the removal of the appendix. In many of these cases the evolutionary bands extend from the ileum to the appendix. The cutting of these and the correction of the resulting kink will effect a cure after appendectomy has failed. The possibility of the existence of these evolutionary bands should be borne in mind in all cases of appendicitis, especially of the so-called chronic type.

Ileal kink.—Kinking of the ileum at different points along the course of the terminal coil may be caused by evolutionary bands. In uncomplicated cases, where the kinking is of slight degree, relief may be obtained by the simple cutting of the bands transversely and sewing up longitudinally. Very broad bands are sometimes found, giving rise to marked angulation and very pronounced stasis. In these cases severing the bands, with or without plication of the upper surface of the mesentery, does not rectify the condition. Ileo-colostomy or ileo-proctostomy is then necessary.

Duodeno-jejunal kink.—Kinking of the duodeno-jejunal junction is usually secondary to ileal stasis. The first part of the duodenum becomes greatly distended, the second and third parts being very little affected. Adhesions about the pylorus, with more or less marked kinking and obstruction of this part of the alimentary tract, may complicate such cases. This is always to be borne in mind in suspected cases of cancer of the pylorus.

Correction of the duodeno-jejunal kink may be accomplished by the division of the bands and the placing of the upper part of the jejunum against the under surface of the transverse meso-colon. In the event of marked obstruction to the pylorus it is sometimes necessary to resort to gastro-jejunostomy.

Kinking at the hepatic and splenic flexures of the colon.—Milder degrees of obstruction and stasis in these cases may be relieved by omentopexy. In more severe cases, when other measures have failed, colectomy may be employed with success.

Kinking at the sigmoid loop.—Evolutionary bands may form in such manner as to bring together the two ends of the sigmoid loop. The mobile loop may be converted into a short, straight tube by bands extending from the peritoneum external to the meso-sigmoid. This tube crosses the iliac fossa obliquely, being only partially covered by peritoneum. Lane holds that this condition is found almost exclusively in tuberculous subjects. It may be corrected by anastomosis between the ileum and the beginning of the pelvic colon.

Kinks at different points, extreme cases, with many bands and diverticulitis.—Colectomy is indicated in such cases.

In some cases, particularly in female subjects, ileo-colostomy, or short-circuiting, is deemed by Lane to be a safer procedure than the cutting of bands. In a certain proportion of cases in which ileo-colostomy has been performed there will be an eventual recurrence of the symptoms of stasis, and colectomy will have to be resorted to in order to effect a cure.

By the recognition of the existence of evolutionary bands and resultant kinking and angulation of the drainage tube, and by the institution of the proper medical or surgical corrective measures, many patients may be saved from becoming "human wreckage," while others who have reached this deplorable condition may be practically "made over" by resorting to the more radical operative procedures.

DISCUSSION.

Dr. John T. Burrus, High Point: If we do not get a correct diagnosis by frequent X-ray exposures, is it not possible that we can get an injection of the cecum and make a picture of the gut? I had the pleasure of witnessing a great deal of this work in this line, and it is a question of what we shall, and what we shall not do.

Dr. Joseph Graham, Durham: I enjoyed very much Dr. Bainbridge's paper, and I wish that I had been able to understand all that he has presented. I have had no experience in this repeated and continuous X-ray examination. After we have analyzed it thoroughly and completely it is still a hard thing to do. But when you can see the lumen of the gut you can cure your case.

Dr. John Wesley Long, Greensboro: I want to say in the first place that the Society is to be congratulated on having had the pleasure of listening to Dr. Bainbridge's splendid discussion of this subject. We know that this question of intestinal stasis, as Mr. Lane calls it, is one of the live subjects of the day. It is one that has awakened interest throughout the world and surgeons are turning their attention to it. I am glad to say that the true students are studying it. I agree with almost all that Dr. Bainbridge has said, and I certainly feel a personal interest and am glad to come in contact with a man who has gone into this with the thoroughness that Dr. Bainbridge has given it.

I think, gentlemen, that we should be just a little cautious, though, in our enthusiasm. I do not believe that the surgeons throughout the world are agreeing with Mr. Lane in the entirety of his conclusions, because Mr. Lane is carrying the question to extremes, in my opinion. I say that in the study of this question we must be careful not to be too enthusiastic.

Dr. J. Allison Hodges, Richmond, Va.: I simply rise for the purpose of saying that I agree in the main with what Dr. Bainbridge has said, as to the presence of these bands, and also as to the necessity of the removal of such anatomical abnormalities in certain cases. I think it is necessary sometimes as a curative measure, but we are apt to be too enthusiastic about such radical measures, and if I must consult my experience, I must say that I have seen a number of these cases that have been operated upon by competent surgeons and they have not shown the progress and beneficial results that we might have expected. I recognize also there are experts that may be able to do this work in a way that others cannot do it. There should be a word of caution administered to make us more careful in our expressions of enthusiasm, for the main point that I wish to impress upon you is that we must not be carried away and imagine that we can cure every one of these cases, for the correction of an anatomical abnormality is not always the cure of a pathological lesion.

Dr. Bainbridge thanked those present for their attention and for the discussion which had been interesting and helpful in bringing out many important points. He replied to Dr. Burrus, who asked if X-ray is of value as a diagnostic means in these cases of stasis: unquestionably the use of bismuth and the taking of pictures of the whole of the abdominal viscera aid greatly, but better than the photographs is the use of the fluorescent screen whereby the radiographer watches the passage of the bismuth from above downwards, and is able by manipulation to move the organs, or find that they cannot be moved, from one place to another in the normal range. Radiographic pictures with the fluoroscopic screen studies give us most valuable data, but we must not misinterpret shadows, and frequently there may be kinks present that have no pathological significance.

In response to Dr. Long, Dr. Bainbridge said he was indeed glad to hear one speak who had also been in touch with Sir Arbuthnot Lane, and had seen some of the work of that brilliant surgeon. Dr. Long is, however, in error in stating that Lane advises removal of the colon for trigeminal neuralgia, goitre or a number of other conditions, as some critics of our great London surgeon have claimed. Lane has had cases of chronic intestinal stasis associated with trigeminal neuralgia and with goitre; he has operated for the stasis, as demonstrated not only by clinical symptoms but by X-ray pictures taken by that splendid worker, Dr. Alfred C. Jordan of Guy's Hospital, the stasis has been cured and the trigeminal neuralgia or the goitre has disappeared. This is very different from advising the colon to be cut out for these conditions. We who have tramped the wards of Guy's Hospital in the fall during the last

eight or nine years have seen wonderful results. Unquestionably goitres have disappeared and trigeminal neuralgia has been cured, and Sir Arbuthnot Lane asks us to study the question as to how and why, but he does not dogmatize that goitres are to be cured by the removal of the colon. It is interesting to note that one of the greatest heart specialists of England, Mackenzie, is sending a number of cases to Lane for treatment of heart and kidney conditions. The whole subject seems to open up a new field—let us have an open mind in regard to the question of the plumbing of the human body. Remember that Lane, who was the first to use the saline solution in human practice, the first to take out a rib for empyema, is the man who today brings to our attention this whole question of intestinal drainage, and let us give careful consideration to all that he claims, and work out with him, perhaps, a new avenue of hope for many a derelict.

Dr. J. W. Long, Greensboro: I want to say in reply that this question is such a big one and there is so much truth in it that it seems to me entirely unnecessary for Dr. Bainbridge to deny certain operations Mr. Lane does, in order to justify his endorsement of Mr. Lane.

That Lane does remove the colon for exophthalmic goitre there can be no question. While visiting his clinic I saw him exhibit such a case. I talked with the patient as did a number of other visiting surgeons. Mr. Lane's word for it and the patient's word for it; he does remove the colon for exophthalmic goitre.

Lane also removes the colon for simple ulcer of the duodenum, and in reply to a question as to the propriety of doing a gastro-enterostomy for duodenal ulcer said he "would not do such a silly operation." I also saw him do a colectomy for "toxic disease of the heart."

I am sure I voice the sentiment of all conservative surgeons when I utter a word of caution against following such extreme views.

CHOLECYSTITIS AS A SEQUEL TO TYPHOID FEVER.

J. F. Highsmith, M.D., Fayetteville, N. C.

Inflammation of the gall bladder, like many other inflammatory infections, varies so much in grade that certain forms do not cause appreciable symptoms, while on the other hand, it may be fulminating in character. The causes at large of cholecystitis are those usually of inflammation, most frequently some pathogenic organism favored by local irritation of a mechanical kind. But perhaps the most common cause of this disease is the typhoid bacillus, which creeps up the common duct from the bowel. The favoring conditions helping to cause

trouble, when the typhoid bacillus once enters the gall bladder, is the presence of gall stones, which seem at once to become offended, and in due time we have the patient seized with a chill and fever, followed by pain and tenderness in the region of the gall bladder. In some cases there is extreme nausea, highly colored and scanty urine, heavily coated tongue, dry skin and torpid bowels, temperature varying from 100 to 105, presenting a typical picture of a septic condition. This condition in olden times was often mistaken for malaria, but thanks to the laboratory and microscope this is no longer true. Successive attacks may occur, each one milder than the preceding one, gradually terminating in resolution or a partial resolution, most likely the latter. The acute process often seems to become extinct, and suppurative or non-suppurative cholecystitis only appears several months after typhoid fever.

Gregg claims that typhoid bacilli have been found in the gall bladder as long as fifty-two years following typhoid fever. The severest or fulminating form often terminates in an abscess, which, if unrecognized, may rupture into the peritoneal cavity, producing shock and death. But the tendency of cholecystitis secondary to typhoid fever is not to rupture the gall bladder, for the gall bladder has a wonderful capacity to carry its burden from time to time, and through a process of compensation the patient lingers on and on, suffering from time to time from this infection, which is not at all plain. Cases of typhoid fever which run the usual course and in which the convalescence is delayed, the patients not regaining their formal digestive powers, are undoubtedly in my mind often due to typhoid bacilli present in the gall bladder and cholecystitis of a mild form resulting in some way, offering constant irritation to the portal circulation. We know it to be true that in taking the history of gall stones it is quite frequent that we have the history of antecedent typhoid fever.

A. D., age 40. Male. Came under my care September 6, 1906. Giving a history of typhoid fever one year previous, was well until this attack of fever. Since that time he has suffered more or less all the time from what he described as indigestion, constipation, tendency to become nauseated, and now and then would vomit. With his worse attack tenderness was most marked over the gall bladder. Slight jaundice at times, skin of a muddy hue, was thirty pounds under his usual weight at that time. A diagnosis of gall stones or cholecystitis with possibly catarrhal appendicitis was made. Operation was decided upon and performed on September 20th. The appendix was negative. The gall bladder was found to be pale, much thickened and did not empty with ease on pressure. No gall stones present. Opened and drained a thick tar bile. Patient made an uninterrupted recovery and left the hospital within four weeks' time. Since then states he has been perfectly well.

Mrs. T. Age 50. Mother of six children. Had enjoyed good health until

July, 1906, when she entered the hospital for treatment. Her case was diagnosed as fever, giving a positive Widal reaction. She had an average case of fever of about four weeks' duration, at the expiration of which time her fever was normal and to all appearances she was on the road to recovery without complications. But within about three weeks' time the patient developed fever of an intermittent type, preceded with chilly sensations and followed by sweats. It was with great difficulty that she could take nourishment and retain it. Much tenderness developed over the gall bladder. No colic but aching pains, extending under the right shoulder, plus jaundice gradually becoming pronounced and her condition very alarming. Was operated upon September 1st, the gall bladder found to be contracted and full of gall stones, the stones were removed and the gall bladder drained. No bile discharged for a week or ten days and the patient was extremely ill, but graually after a time began to throw off healthy bile and made a satisfactory recovery. Now enjoys the best of health.

Mrs. M. Age 40. No children. Contracted typhoid fever of the most fulminating type June, 1913. Condition alarming; for weeks after battling with fever and hemorrhages gradually convalesced to the extent that she could be up and about her room, but from time to time became extremely nauseated and it was with great difficulty that she could take nourishment, consequently gained strength very slowly. This condition of her digestion gradually became plain as soreness and tenderness became localized over the region of the gall bladder. Then a diagnosis of cholecystitis as a sequel to typhoid fever was established. She was extremely ill and her case at times seemed advisable for operation, but she preferred to be given a chance to use medical treatment. This was done by assisting elimination as much as possible. Carlsbad water was given freely, repeated doses of calomel now and then, stomach lavage, urotropin and digestive tonics. Patient improved very slowly. At the present time she enjoys reasonably good health, but I predict that sooner or later she will have to come to operation and I believe the sooner the better.

Undoubtedly, most of you have had in your respective work many, many instances similar to these which I have roughly mentioned. I could report many more, but these will suffice, I trust, to draw renewed attention to the fact that the gall bladder in typhoid fever is often found to be the habitat of the typhoid bacilli, and that the typhoid bacilli may remain in the gall bladder for years after a patient has had typhoid fever, with no perceptible danger. I believe, all things being equal, it is good surgery to drain the gall bladder in all cases of marked cholecystitis.

ARTRESIA OF THE VAGINA OF CONGENITAL VARIETY.

J. A. Williams, M.D., Greensboro, N. C.

(Read by Title.)

The case was referred to me by Dr. J. E. Foscue.

Miss M. S.; age 16. Family history: Negative.

Personal history: Was born prematurely, seven months' pregnancy. Had the usual diseases of childhood: rubeola, pertussis, mumps, varicella, repeated attacks of tonsilitis, pneumonia at the age of ten, otitis media at age of fifteen with spontaneous recovery.

Menstrual history: Patient had never menstruated, but had been having pains for the past year in the lower abdomen which usually lasted for two or three days at a time and reoccurred each month without indication of any flow. She had never had vicarious menstruation. For the last three months the pain had become more or less continuous, especially severe at night. Three months ago the patient noticed a small mass slightly to the left of the median line of the lower abdomen. This mass she claims was gradually growing in size. Her appetite was poor, she was pale, ænemic and generally debilitated and had lost some in weight.

Upon physical examination she was found to be rather poorly nourished and underdeveloped. Height, 5 ft. 6 in.; weight, 110; hands, arms, head, neck, chest and heart negative. Abdomen, upper half negative, while in the lower half was very tender, but not rigid. A large mass in the median line, inclining toward the left ilias fossa. On palpation it was hard, movable in either direction and continued into the pelvis behind the symphysis. Percussion over the mass we get a flat note. The lower extremities were negative. The mammæ were fairly well developed.

Vaginal examination: The labia majora, labia minora, clitoris and urinarius meatus normal, but there was no vaginal orifice.

Blood: Hemoglobin, 75 %; leucocytes, 10,200; red blood 4,140,000 relative proportion. Tempr., 99.2°; pulse, 86; respr., 22.

Diagnosis: Imperforate hymen and distension of uterus with blood. The space between the vestibule and fouchette or anterior perineum was very short.

The patient was put on the operative table, perineal position, an incision was made with a scalpel from the meatus urinarius to the perineum and dissected back for two inches deep. I then found a bulging mass containing fluid. Fearing this might be the bladder I packed this opening and opened the abdomen. Upon opening the abdominal cavity I found the abdominal mass to be the uterus pushed up completely out of the pelvis, extending midway between the umbilicus and symphysis. The omentum very black and studded with clots of coagulated blood, uterus distended and congested. The Fallopian tubes were very much enlarged, congested and leaking from their fimbriated ends into the abdominal cavity with quite a quantity of blood in the cavity. The ovaries also enlarged and congested. The pelvis was com-

pletely filled with a large liquid mass. The abdominal incision was covered temporarily with gauze and towel.

The patient was put back in perineal position. The edges of the vaginal incision retracted, the mass was grasped with a pair of Oschner forceps on each side and drawn down to the edge of the vaginal incision. After introducing a sound into the bladder the mass was incised and found to be the vaginal fluid with liquid blood, dark brown and of about two quarts. The edge of this mass was stitched to the edges of the anterior incision all round and a rubber tube inserted into the vagina for drainage. The abdominal incision was then exposed. The left tube was so strictured and adherent to the sigmoid that it was excised. The abdominal cavity and pelvis thoroughly dried with sponges and a cigarette drain left in the lower part of the abdominal incision, extending into the pelvis, and the abdomen closed in the usual way. This drain was removed on the sixth day, the vaginal tube on the eighth day and a sterile douche given daily. The temperature on the third day was 100°, then normal till the patient left the hospital. The vaginal wound healed nicely and the patient left the hospital on the eighteenth day feeling fine, color good. I understand she has since menstruated naturally, and now is in almost perfect health.

ANATOMY OF A DISLOCATION OF THE ELBOW JOINT.

L. J. Arnold, M.D., Lillington, N. C.

In presenting this subject, I shall endeavor to refresh our minds on the normal anatomical relations of the uninjured elbow.

The elbow is a ginglymus or hinge joint. Entering into its formation is the troclear of the humerus which is received into the greater sigmoid cavity of the ulna formed by the olecranon process posteriorly and the coronoid process anteriorly, admitting of flexion and extension, the movements natural to this class of joints.

The lesser or radial head of the humerus is received into the cup-shaped head or depression of the radius and articulates with the lesser sigmoid cavity of the ulna, making possible the movements of pronation and supination. The articular surfaces are covered with a thin ligament of cartilage and connected with a capsular ligament which is thicker on its two sides than in front and behind.

The thickened portions are usually described as distinct ligaments, namely: Anterior and Posterior ligaments, External and Internal Lateral ligaments. One other to be considered in this joint is the Orbicular ligament of the upper radio-ulna articulation.

In making an examination of an injured elbow, it is best to do it under anesthesia. It is very essential to an accurate diagnosis that we be familiar with the bony landmarks of the joint, namely: the prominent internal condyle of the humerus, the lesser prominent external condyle of the humerus, and the olecranon process of the ulna.

Too, we must not forget the head of the radius. With the forearm extended the three points will be found to be in nearly a straight line transverse to the long axis of the limb with the tip of the olecranon just a trifle above this line. When the elbow is at right angles these three points will be found in the same plane with the back of the upper arm.

Owing to the great breadth of the joint, the interlocking of its articular surfaces, the strong lateral ligaments and muscular attachments to each condyle of the humerus, lateral displacements are very rare; while on account of the shortness of the antero-posterior diameter, the weakness of the antero-posterior ligaments and the want of muscular support, backward and forward displacements are much more frequent.

Because of the infrequency of lateral dislocations, I shall not take up time to discuss these, but pass on to those more frequent—forward and backward dislocations.

The cause of forward dislocations is usually from a blow on the olecranon when the arm is flexed. Dislocation forward takes place during flexion, because the olecranon process is out of the olecranon fossa and therefore loses its grip to a certain extent.

The symptoms are as follows: The forearm is flexed and lengthened the olecranon is on the level with the condyles so that its prominence is gone, the humeral condyles can be felt posteriorly and the radius and ulna can be felt anteriorly.

The treatment consists in early reduction, accomplished by forced flexion and pressure, placing the parts in Jones position and making passive motion daily after a few days.

The most common of all dislocations of the elbow is that of both bones backward, caused usually by falls on the extended hand. This dislocation takes place in a position of extension because the coronoid process is not interlocked into the coronoid fossa and to a certain extent its grip is lost. The normal relation of the three bony points is not maintained, the olecranon is found to be posterior to the condyles and very prominent. The lower end of the humerus projects in front of the joint, and below the skin crease; the head of the radius is found back of the outer condyle. There is shortening of the arm and lateral mobility at the elbow.

In reducing a dislocation the dislocated bone should be carried along the same path which it came when dislocated. The best method of reducing a backward dislocation is by two steps, first: extending the forearm, thus freeing the coronoid process from the olecranon fossa and the posterior surface of the humerus, and second, by direct traction

and flexing. If there is any lateral deformity this should be corrected before attempting to reduce the dislocation. The after treatment of an uncomplicated dislocation of the elbow is by immobilization with the forearm at a right angle with the upper arm. If there is a tendency to displacement, the acutely flexed position will be the best, because in case the coronoid process is broken it will insure its close approximation to the ulna.

As the swelling subsides the angle of flexion may be made smaller. Massage and passive motion should be used as early as the second or third day. Good results are to be expected.

A RECONSIDERATION OF THE ANATOMY OF THE STOMACH AS REGARDS PYLORIC ULCER.

G. H. Macon, M.D., Warrenton, N. C.

The pyloric end of the stomach is much smaller than the fundus, and it is in relation with the wall of the abdomen and under surface of the liver. This relation is changed when the organ is distended. There are two bends near the pyloric end of the stomach. The distal bend is where the pyloric valve is situated, and between them is a bulging called the antrum-pylori.

The pyloric glands are numerous at the pyloric end of the stomach and secrete a serous substance. The pneumogastric and sympathetic nerves supply this part of the stomach.

The blood is through the celiac axis which gives off the hepatic and this in turn sends out the pyloric and gastroduodenal direct to the pyloric end of the stomach.

The small intestines beyond the common duct are supplied by the superior mesenteric arteries.

The pylorus and duodenum are in the shape of an S transversally. We know that accumulation occurs at this point because at post mortems this part of the pylorus is stained with bile and is much more dilated than other parts of the intestines.

This S arrangement in a measure prevents the regurgitation of food from the small intestines into the stomach.

In some instances we find cases who vomit large quantities of gases and fluid; this is due to an inadequate condition of the pyloric sphincter, which is supposed to act as a partition.

The pyloric is suspended from the liver by the gastro-hepatic omentum; and on account of this relation the pylorus and proximal duodenum are freely movable.

Ulcers of the pyloric region are found more frequently in the part

distal to the pyloric sphincter than on the proximal side of the sphincter. The anatomic reason is because the fundus is the highest point of the pyloric section, also because the blood supply is not as abundant as in other parts of the stomach; therefore the first two inches of the duodenal portion of the pyloric is the most common seat for ulcer.

The first two inches of the duodenal portion of the pylorus is supplied by the supra-duodenal; in most instances this artery normally should be a branch of the gastro-duodenal, but in some cases it is given off direct from the hepatic.

The supra-duodenal anastomoses with other arteries; although it is not as pronounced as is the case with most arteries, and in many cases this artery does not enter into anastomoses with any other of the surrounding blood vessels; therefore the first two inches of the duodenal portion of the pylorus is the most common seat for ulcer formation, due to its deficient blood supply.

Another anatomic factor in regard to pyloric ulcer is its sympathetic nerve supply, which is in intimate relation with seventh, eighth, and ninth spinal roots, and for this reason we can account for the tenderness of the overlying surfaces in pyloric ulcer, and the pain which in most cases is referred to the left shoulder blade, but in some instances, as in biliary calculi when the stomach is adherent to the gall bladder, the pain is referred to both the right and left shoulder blade. Pyloric ulcer is also usually found at the junction of the ascending and descending portion of the proximal duodenum.

It is known that men are more commonly affected with arteriosclerosis than women. On account of this lessened blood supply to the parts due to arteriosclerosis, we commonly find more cases of pyloric ulcer in males than in females.

It is now believed that ulcer on the gastric side of the sphincter really had its origin on the duodenal part of the sphincter at the fundus, which is the part of the least resistance. In some instances we find ulcers which are continuous across the sphincter on both sides, this being due to the continuity of the lymphatic vessels in the mucous and submucous coats of the stomach and duodenum.

In quite a number of cases gastric ulcer is secondary to such anatomical changes as chronic appendicitis, cholecystitis and the diseases of the pancreas, while in a certain number of cases pyloric ulcer is mainly due to a derangement of innervation.

We usually find more cases of chronic appendicitis and gall stones in women than in men, whereas, on the other hand, pyloric ulcer is more commonly found in men.

We must admit that chronic conditions are found more frequently in females than males.

The superior horizontal portion of the duodenum is called the cap and is separated from the stomach by the pyloric ring. Like the stomach, this first portion of the duodenum may be distorted by ulcer. The signs of perforating ulcer hold for this part of the duodenum as they do for the stomach.

The function of the cap is that of a reservoir. During the early stages of digestion the contents are rapidly withdrawn from the reservoir cap, but as digestion progresses the cap is more completely filled with acid chyme. Spasmodic contraction of the cap is often the result of iliac stasis, Alan's kink or a diseased appendix.

CHRONIC CONSTIPATION—A REVIEW OF SOME IMPORTANT ETIOLOGICAL FACTORS.

JOHN KERR PEPPER, M.D., WINSTON-SALEM, N. C.

The discussion of a symptom is always regarded as more or less trite, but I am willing to risk your criticism in an effort to encourage more rational consideration of a condition that is more frequently neglected than almost any other symptom or pathological state.

Until recently, the treatment of chronic constipation has been experimental; one after another method was tried till, by chance, that adapted to the individual was finally discovered. This unsatisfactory state of affairs has persisted, partly because it rarely occurred to physicians to investigate the cause of so common a complaint, but mainly on account of inability to determine the location of delay in the passage of its content along the intestinal canal. This latter difficulty, however, through the researches of experimental physiologists, has been surmounted, so that now we no longer need apply empirically routine methods, but may know, to a fair degree of accuracy, what happens to the food ingested; the normal performance of the intestinal movements; the normal rate of passage of the intestinal content as it is propelled from one point to another along the intestinal tube; the location of, and why, any delay in its passage, the manner in which certain types of food and diet may affect the quality and quantity of the stool; and how, and upon what part of the enteron the various therapeutic measures that we prescribe have their action. The acquirement and application of this knowledge will affect our plan of treatment to the degree that it enables us to differentiate those cases of chronic constipation in which medical or surgical treatment are indicated from others that may more readily respond to the simpler mechanical, hygienic and dietetic measures.

Only within the past few years have the normal movements of the intestine been successfully studied. By the old experimental method in

which the viscera of an animal were exposed to direct inspection, peristalsis was discovered as a slowly advancing wave of contraction that propelled the food mass along the intestinal canal. In 1890, C. Jacobi reported his accidental discovery of antiperistalsis while working out some experiments in colchicum poisoning; his finding, after thorough investigation, was later established. Cannon, in 1902, by means of X-ray examination of animals, observed a new and equally important movement that he has called "rythmic segmentation of the intestinal contents." Each of these respective movements has ascribed to it an individual function; collectively they represent the normal intestinal mechanism which, during intestinal activity, serves to churn together the food and digestive juices; plunge the absorbing mucosa deeply into the food mass to bring it more intimately in contact with the nutrient material to be absorbed; propels the blood in the portal circulation by pumping the blood from the sub-mucous venous plexuses into the radicles of the superior mesenteric vein; promotes the flow of lymph from the fat-laden lacteals, and by compression of veins and lacteals, serves to deport through the blood and lymph the digested and absorbed material.

Normally, the food mass is propelled from one part of the intestine to another with comparatively uniform rapidity. The stomach commences to empty itself immediately after the beginning of a meal, but when a meal containing bismuth is administered and the X-ray employed for observing its passage, it has been found extremely difficult, if at all possible, to note any definite shadows of bismuth, due to great dilution by the digestive juices and to the rapidity of its progress through the small intestine, till its arrival at the ileo-cæcal valve, where, in the average individual as determined by Cannon, Hertz, Rosenheim and others, the first shadow will be noted about 3 hours and 22 1-3 minutes after ingestion, and 9 hours will have elapsed before the full meal arrives at the cæcum. From this point on to its final expulsion, the rapidity of progress of the fecal mass that has accumulated in the cæcum and ascending colon is, for anatomical and physiological reasons, greatly retarded, so that six and one-half hours are required for its advancement to the hepatic flexure, 9 hours to pass through the transverse colon to the splenic flexure, and 11 hours later it will have reached the iliac colon. The time required for the passage of a given amount of food from the time of ingestion to its expulsion is found to be about 32 hours, provided that defecation does not occur in the interval after the food for observation has been taken. This estimate of time would, however, be materially modified if a bowel movement should occur shortly after the food has been taken, for the reason that, on

defecation, not only are the rectum, pelvic, iliac and descending colon emptied, but a portion of the content of the distal transverse colon is also emptied into the descending colon and is voided with the preceding discharge. So, if defecation occurs 9 or 10 hours after food has been taken, a part of that which has reached the transverse colon will be found in the stool. Hence, if the bowel acts once daily, a period of from 9 to 32 hours will normally elapse, according to the time of taking food and the time of defecation, before the food residue is extruded at the anus.

As a result of these normal findings relative to the movement of the intestine and to the time required for the passage of a food mass through the average intestine, we may now define constipation as an abnormal delay in the passage of the intestinal content from the cæcum, to and through the anus. A paraphrase of Hertz's definition of "a condition in which none of the residue of a meal taken 8 hours after defecation is excreted within 40 hours." This definition is intended to include only those conditions of delay that are due to unusual hardness, dryness or insufficient quantity of the stool, and intentionally excludes any delay that may occur in the small intestine, for when the progress of the intestinal content, from any cause, is retarded here, either very active peristalsis will overcome the impediment or the condition rapidly passes to complete occlusion of the gut lumen and an acute obstruction is present.

This leads to a discussion of some principal causes of constipation. The classification that I consider most satisfactory and have adopted for this purpose is both anatomical and physiological in that it is based upon a separation into two classes accordingly as the delay occurs in the colon or the rectum. These two broad classes may be sub-divided into delay due to obstruction, deficiency of the intestinal or accessory musculature, or both; to inefficient stimuli or to abnormality of the automatic reflex.

When constipation occurs in the colon, the rectum is almost invariably empty; food passes normally to the cæcum, and the act of defecation is performed without difficulty, hence, the delay is located at some point between the cæcum and the pelvic colon, and is caused either by obstruction of greater or less degree or by deficient motor activity of the intestine. Delay in either instance is generally at a point distal to the hepatic flexture, as here the intestinal contents become more or less solid, frequently from the too complete absorption in the cæcum and the ascending colon, so-called "greedy colon"; maybe to a deficiency of fat and its digestive product, which chemically stimulate intestinal activity and mechanically soften the fecal mass; elimination by other

channels may be excessive even though an adequate amount of fluids be taken, as, for example, the constipation of the diabetic, while beer drinkers rarely experience any such difficulty; temporary constipation occurs as a compensatory process after acute diarrhea or the purging from an overdose of cathartic; many women are constipated during lactation by an excessive drain upon the body fluids, while many others take an insufficient amount of water, which necessarily means a decrease in the amount of liquid to be excreted by the urine, sweat, and feces; and if, as sometimes occurs in those individuals who habitually bolt their food, there is an accumulation of feces, that is increased by lumps of unchewed food, the mechanical stimulus may not be sufficient to enable the intestine to propel the large mass of feces with sufficient rapidity to prevent stasis and fecal impaction. Kinks and folds, congenital or acquired, gall stones, enteroliths and the like, have all been recorded as obstructing agents in obstipation, but their occurrence is so infrequent as to warrant only mention as etiological factors.

Constipation from deficient neuro-muscular activity of the intestinal wall is in some cases congenital and has been described as Hirschprung's disease. I have observed a case of this constitutional weakness in a young lady whose skeletal muscles were well developed and who was otherwise quite healthy. Lowered bodily nutrition in the acute infections, anemia, cachexia, general ill health, and convalescence from severe illness are all causes of diminished neuro-muscular excitability of the intestinal wall which is also present in senile constipation, while in the latter, undoubtedly, atrophy of the intestinal musculature and mucous membrane degeneration are added to the general abdominal weakness.

Mental disorders—the psychoses, cerebral diseases, and the like—are frequently accompanied by constipation, which may become a most troublesome symptom, and the neurasthenic may become deeply obsessed if his bowels fail to move quite regularly.

The taking of insufficient food, the too complete digestion and absorption of food; and the lack of sufficient quantity of stimulating elements of food, as cellulose, silicious and other indigestible matter, to stimulate the intestine to normal activity, contribute materially to the occurrence of colon constipation.

Rectal constipation is, in many respects, so similar to the delays that occur higher up in the gut that a differentiation of this special type is not often observed. In this class of cases there is no delay in the arrival of feces at the pelvic colon; the rectum is more or less filled but extrusion at the anus is difficult on account of some existing obstruction, inhibition from inadequate voluntary effort, or diminution of the automatic reflex.

Large accumulation of dessicated feces, as found in atony, or small quantities of hard and dry mucus-covered fecal matter so characteristic of spastic colon, are often present as obstructing agents, as are strictures of the rectum, which may be functional, as anal spasm, a reflex manifestation in nervous individuals generally associated with enterospasm, thread worms, ulcer, inflamed hemorrhoids and the like; or organic from tuberculosis or syphilis; fibrous, an occasional sequel to hemorrhoid operation; or malignant, so common in those past the age of 40 that it is always to be suspected, especially if a history of constipation following previous regularity of the bowels is obtained.

Increase of the pelvi-rectal angle from any cause considerably obstructs the passage of feces; prolonged retention of hard and dry feces in the pelvic colon may result in chronic inflammation of the mucous membrane or peritoneum with consequent adhesions that may attach it to the rectum or fix it to the floor of the pelvis. Invagination of the upper into the lower part of the rectal mucous membrane as described by Harrison Cripps, and Gant's theory, questioned by Hertz and Tuttle, that an intussusception of the pelvic colon into the rectum appears in normal defecation, the feces being driven down as if by the piston of a syringe, and that chronic intussusception of all the layers or coats of the pelvic colon into the rectum is not uncommon in adult constipation, may be infrequent causes of delay, while one of the commonest causes of the constipation encountered in women is pressure on the pelvic colon from without by a gravid uterus, a sub-involuted uterus that is retroverted, or by uterine or ovarian tumors. Rectocele is also a frequent cause for obvious reasons. In men, delay from extraneous pressure is rare, since prostatic tumors usually require surgical interference on account of urinary symptoms before the tumor becomes of sufficient size to press on the rectum.

Delays in the rectum from either inadequate voluntary effort or diminution of the automatic reflex lead eventually to the same final result—atony and paresis of the gut and complete loss of the defecation reflex.

The muscles concerned in the act of defecation are the anal sphincters, the abdominal muscles, the diaphragm, and the muscles that form the pelvic floor, the principal one of which is the levator ani. The functional impairment of any group of these muscles, as from spasm of the sphincters, weakness of the abdominal wall, a ruptured or relaxed levator ani, as often results from frequent pregnancies and badly managed deliveries, especially among that class of women who cannot stay long enough in bed after their labor, will materially aid in producing delay and difficult defecation. Chronic disease of the spinal cord is

accompanied by constipation, as is evidenced in tabes. The pain of appendicitis, tubal or ovarian disease inhibits the reflex; hemorrhoids, fistula, and anal ulcer not only prevent sufficient voluntary effort, on account of the accompanying or subsequent pain, or the fear of pain, but reflexly inhibit intestinal movements. It is a noteworthy fact that many such sufferers will avoid a morning stool, since it means a day of unhappiness on account of the inevitable anal spasm. Instead they choose the night time for relief that they may lie down to endure their suffering preparatory to an ensuing day of comparative comfort.

Of the many and frequent causes of constipation, a very important and, I might say, the most common, is the repeated habitual disregard of the defecation reflex. This may be due to the painful causes that I have mentioned, but more often it is from laziness, inconvenience, ignorance or false modesty. As a part of every one's daily routine, a convenient time and place for defecation should be selected and every call to stool as promptly heeded as is possible. Voluntary inhibition, with maybe only a few short, griping, colicky pains, will usually defer the call to later recurrence; the second call is soon felt but may not be so urgent as the first; if this and subsequent demands are suppressed the sensibility of the rectum will soon become blunted and the call to stool become weaker and less imperative, till as time goes on and the desire to defecate is continually neglected, the rectum becomes less and less sensitive and is finally trained to completely ignore the defecation reflex, even though the rectum is loaded with feces; the muscular apparatus will suffer and the damage may become permanent. Habits of this sort are often acquired during the early years of life, and I am convinced that more time and attention should be given by mothers, nurses and teachers, in their training of children, to teaching them to regulate this natural and most important function.

APPENDICULAR LIVER.

Richard N. Duffy, M.D., New Bern, N. C.

The liver, acting as it does as a filter for the portal system, receives the brunt of the attack of bacteria and toxins elaborated in inflammatory conditions of the area drained by this system. The vermiform appendix, like its attached cæcum and all other portions of the intestinal tract, is supplied with venules which form a rich network of ramifications in its various coats. These unite into larger and larger branches and finally form the appendiceal vein. This vein traverses the mesoappendix and empties into the ileo-cæcal branch of the superior mesenteric, thus being a part of the portal system. Through the veins of

Retzius the appendicular venous system anastomoses also with branches from the systemic venous system which supply this area. As the portal vein enters the liver it divides into a right and a left branch distributed to the respective lobes. The right branch is almost a direct continuation of the main portal trunk, whereas the left is given off at practically a right angle. A priori, therefore, we would expect that the right lobe of the liver would be more extensively involved than the left in the attack of toxins and bacteria through the portal system, and such we find to be the case in a majority of instances.

According to Loisson, in addition to the portal route, infectious products from the appendix may reach the liver by way of the bile ducts, the hepatic artery, the lymph channels and lastly through the peritoneum.

It is difficult to see how the bile ducts could play an important part in the development of hepatic infection from the appendix, but Pilliet and Gosset report a case in which they claim that the intra-hepatic bile ducts were occupied by abscesses which later extended to the liver substance, the abscesses having originated in appendiceal suppuration.

The hepatic artery may evidently convey infectious agents to the liver either by the infection finding its way into the inferior vena cava by means of the anastomosis of the appendicular veins with the systemic system through the veins of Retzius; or it is possible to conceive that the infection may come by way of the portal vein, fail to lodge in the liver, be conveyed to the heart and then brought back to the liver again by the hepatic artery. The latter condition would represent, then, only a part of a general pyo-hæmic process.

There is a difference of opinion among anatomists in regard to the anastomoses of the lymphatics of the appendix. According to Loisson, the appendiceal lymphatics do not communicate with the liver, but during the adhesive processes developed during appendicitis, a connection may be established with the parietal lymphatics which ascend toward the diaphragm. In this way the infection may reach the liver by this route. Poirier, Delamere and Cuneo claim that the only normal terminations of the cæco-appendicular lymphatics are in the glands of the ileo-cæcal group. They state, however, that the subserous network of the cæcum anastomoses normally with that of the adjacent parietal peritoneum, and that it is through this network that the cæco-appendicular lymphatics may communicate with some of the neighboring groups. It is conceivable that infection may reach the liver, therefore, by the lymphatic route, but the importance of this channel is a minor one. The liver may become infected by extension from supra or sub-hepatic collections of pus originating in the appendix and extending through

the peritoneal cavity or retro-peritoneally, but these cases belong more properly to the group of sub-phrenic or sub-hepatic abscesses.

From anatomical considerations it is quite evident that the portal route is the most likely for the transmission of appendiceal infection to the liver. This deduction is borne out by clinical observations.

The importance of hepatic infection following appendicitis would seem to warrant more than the casual treatment it usually receives in the literature. The subject is dismissed in many of the text-books in a few paragraphs. Even in the monumental work of Kelly and Hurdon on the appendix, although one may find a very complete discussion of suppurative hepatitis, yet other phases of the appendicular liver receive scant attention.

The present paper by no means intends appropriating to itself the qualification of being a complete treatise. It is the purpose to discuss the subject, as briefly as may be possible, under two headings: (1) Toxic Hepatitis, and (2) Suppurative Hepatitis.

Soon after the onset of appendicitis, as early indeed as the second or third day, toxins elaborated in the appendix may make their way to the liver, mainly via the portal route, and there instigate a toxic hepatitis. This condition was first described most clearly by Dieulafoy in a communication to the Academie de Medicine of Paris, in 1898. The toxins instrumental in causing the changes in the liver cells are not associated with bacteria and the liver does not suppurate in toxic hepatitis.

A day or two after the onset of the abdominal pain in appendicitis it may be noted that the patient is slightly jaundiced. The jaundice is rarely deep and is usually limited to the conjunctivae and the skin of the face. Its onset may make one doubt his original diagnosis and think of gall bladder and bile duct involvement. However, it is found that the tenderness is not over the gall bladder but at McBurney's point. The liver is very rarely enlarged and palpation elicits practically no tenderness along its margin. The urine in these cases is of a dark reddish brown color, suggesting the presence of bile. As a matter of fact, true bile is usually not present. When tested with fuming nitric acid the characteristic green and yellow rings of biliverdin and bilirubin cannot be seen as a rule, but a brownish disc is evident at the line of contact. Further tests prove this to be due to urobilin. The urine may further show a distinct trace of albumin and renal casts will be found in the sediment.

These findings usually indicate a severe grade of appendiceal inflammation; especially is this so if albumin and casts be present in the urine. The patient's symptoms may all the while be deceptively mild.

A recent case in my practice is that of Mr. D., age 48. This patient had been having at intervals for fourteen years attacks of so-called "colic," which had subsided each time after taking emetics and purgatives. The present attack began like previous ones with pain in the epigastrium. The patient took mustard water and also various purgatives without obtaining relief. I saw him the night of the second day after the onset of his pain. At this time he did not look very sick. His facial expression was good. His pulse was a good quality and 100 to the minute. The temperature was only 99⅘. The abdomen was slightly distended and showed a slight degree of general tenderness. There was quite marked tenderness definitely localized at McBurney's point. The next morning the picture was still not alarming on superficial examination. The facial expression was still good. The pulse was still 100 and good quality. The temperature, however, was 100⅖. The tenderness over McBurney's point was slightly more marked but still not very great. On looking closely there could be seen a slight icteric tint to the scleræ and the skin of the face. There was no tenderness about the liver and no enlargement of the viscus. Operation was advised as being urgent. The abdomen was opened as soon as the patient could be prepared and the appendix was found to be gangrenous and surrounded by considerable fresh plastic exudate, also numerous old adhesions. The appendix was removed and the patient made an uneventful recovery, the icteric tint of scleræ and skin disappearing a few days after the operation.

Occasionally the involvement of the liver in this toxic hepatitis may be quite severe and the symptoms correspondingly alarming. Dieulafoy reports a case in which the early symptoms weree apparently mild, but in which there were present an icteric tint to the scleræ and the skin of the face, a trace of albumin in the urine and also urobilin. At operation the appendix was found to be gangrenous and bathed in pus. He continues in his description of the case as follows: "This example shows once more that the gravity of the appendiceal lesions is not always in direct relation to the intensity of the symptoms. The ablation of the appendix removed the primary focus, but the liver and the kidneys were also affected. On Wednesday the situation became critical: the patient was prostrated; his face was drawn and yellowish; hiccough was frequent; the urine was scanty and albuminous; the temperature was 102 degrees F., and the pulse 106. Two injections of serum (one pint each) were administered. He passed a better night. Next day, Thursday, the hiccough had almost gone; the temperature was 99 degrees F.; but slight jaundice was still present. Urobilin still persisted in the

brownish urine, but, an important point, the albumin had disappeared." The case then proceeded through a rapid convalescence.

Kelly reports an even severer grade of intoxication under the caption of "Acute Yellow Atrophy of the Liver" in appendicitis. The case mentioned was reported by M. Ballin (Ann. Surg., 1903, Vol. 37, page 362).

"The patient, a brass worker, twenty years of age, had three typical attacks of appendicitis. He was operated on in the third, when the appendix, which was adherent, friable, and covered with a fribrino-purulent exudate, was removed. The abdomen was closed without drainage. A few days later, when the temperature and pulse were normal, there was slight jaundice of the skin and conjunctivæ, some vomiting, and restlessness. Two days after this, again the jaundice was increased, vomiting greenish and there was delirium. The next day there was noisy delirium with increased jaundice, and vomiting of black fluid, with intervals of deep coma. These symptoms all increased, the stools and urine became involuntary and the patient had to be held in bed by two men, and finally tied there. The jaundice went on to a deep brown color, when venesection and intravenous saline infusions were used. The urine six days after operation showed albumin, casts, bile and crystals of leucin and tyrosin. From this time there was a gradual improvement, and ultimately a complete recovery."

The foregoing cases very probably belong to the class of hepatic intoxication by the portal route. I have recently had a case which illustrates no doubt a mixed venous and lymphatic absorption.

About two weeks ago I saw in consultation with Dr. Pollock, of New Bern, a patient the onset of whose abdominal pain had been one week previous to the time I saw him. He was distinctly jaundiced. A mass could be felt in the right iliac region extending rather high up, and could be palpated also back in the loin. A diagnosis of retro-cæcal appendix abscess was made. At the operation I found an abscess extending up from beneath the cæcum under the ascending colon to the inferior surface of the liver. The abscess was drained from the loin and also anteriorly. A few days after operation the jaundice disappeared and his convalescence has since been uneventful.

Occasionally one may see a case in which the toxic hepatitis is evidently not of a severe grade, but nevertheless jaundice is very obstinate and may persist for months until the appendix is removed. Henri Hartman, of Paris, quoted by Dieulafoy, reported a case in which the onset of acute appendicitis was in September. The acute stage subsided but the jaundice persisted and the liver was enlarged. On October 2d, the patient had another acute attack and jaundice was still noted. There

was also albumin in the urine. On October 14th, Hartman removed the appendix and by October 25th the jaundice and albumin had disappeared.

Dieulafoy also reports a case of a woman who had an attack of appendicitis in February. Jaundice appeared soon after the attack and persisted until the following August. The appendix was removed in August and the jaundice disappeared in ten days.

On April 29th of this year I was consulted by Mr. M., age 25, on account of recurrent pain in the right iliac region extending upward towards the right hypochondrium. He had been having this pain at intervals for four or five years. During the past year the pain and discomfort were quite constant. There was marked tenderness at McBurney's point. There was a slight bile tinge to the scleræ and the skin of the face was slightly yellow. The liver was not enlarged and there was no tenderness over the gall bladder. The patient's mother told me that he had been yellow, as she expressed it, for a long time. I operated on him on May 11th and found an extremely long appendix that extended upwards towards the liver. It was literally buried by adhesions. A few days after the operation the jaundice disappeared.

The above cases serve to illustrate fairly well the various phases of toxic hepatitis following appendicitis. The jaundice in these cases is sometimes so slight that it may be overlooked, unless the patient is examined carefully. Very rarely the jaundice may become general. The liver may be sometimes enlarged. The stools are never clay colored. The combination of jaundice and abdominal pain may, of course, make the diagnosis confusing, as one is apt to think of gall stone colic. Especially is this true when the appendix is of the ascending type, when the pain may radiate to the hypochondrium. In all cases, however, the greatest tenderness is at McBurney's point, and this is the diagnostic key.

All cases of appendicitis associated with jaundice should be looked upon as serious, as they usually represent a severe grade of intoxication with changes in the hepatic cells. Especially is the case to be mistrusted if the jaundice is associated with albuminuria and casts in the urine. If the appendix be not soon removed there may ensue the symptoms of icterus gravis, urinary and hepatic insufficiency and death.

Histological examination of the liver in fatal cases has shown the lesions to be a granulo-fatty degeneration of the central lobular cells, a lesion characteristic of hyper-acute intoxication.

We will now turn to a consideration of our second division of the forms of appendicular liver, namely, suppurative hepatitis, consecutive in the vast majority of cases to suppurative pylephlebitis. The symp-

toms of toxic hepatitis, as we have seen, develop early. The symptoms of suppurative hepatitis are later in their full development, although the process is comparatively early in its inception. It is the product of microbic activity in the portal ramifications and the liver substance, whereas toxic hepatitis is due to the action of toxins alone. The picture is entirely different. Whereas toxic hepatitis is not associated with pain in the region of the liver and the liver is not enlarged, as a rule, suppurative hepatitis, on the other hand, is associated with great pain in the hepatic area and marked enlargement of the liver.

During the past year there came under my observation an illustrative case, which was extremely interesting from the standpoint of differential diagnosis. A description of this case will serve to fix in the mind the main points of diagnosis of suppurative hepatitis following appendicitis.

On December 1, 1913, I was called to see Mr. C., a farmer, 27 years of age. It was rather difficult to obtain a satisfactory history from him on account of his very ill condition. It seemed that he had been taken acutely ill about three weeks before, with abdominal pain and vomiting. The pain began in the right iliac region. Later he said that he had pain in the right kidney region radiating around to the right iliac region. He stated that he had passed some blood (?) in his urine, though his mother denied this. He had passed no gravel and no stones. He had had much nausea and vomiting. A few days after the onset of the pain he began to have chills and had since had a chill each day followed by a drenching sweat. The chills were accompanied by an exacerbation of his abdominal pain, which was then general over the entire abdomen, but mainly in the upper half. He had much nausea and frequently vomited. The bowels were quite loose, the stools green in color and containing much mucus.

I had seen this patient about two years before with an attack of pain in the right iliac region and marked tenderness at McBurney's point. At this time I thought he had appendicitis and advised operation. This was refused, and the patient later passed a renal calculus with a subsidence of the pain.

On examination, at my first visit, it was seen that the patient looked extremely ill. He was much emaciated. His cheeks were sunken. The eyes were hollow. There was jaundice, evidenced by a yellow tinge of scleræ and of the skin over the entire body. The tongue was dry and coated. The temperature was 99⅕, and the pulse 100 and quite weak. His heart was normal in size and position. There was a systolic murmur at the apex, transmitted to the body of the heart. The lungs were

negative. The abdomen was generally distended, especially in the upper half and mainly in the epigastrium. There was general abdominal tenderness, most marked in the epigastrium. There was distinct tenderness over McBurney's point, but not so marked as in the epigastrium. There was also marked tenderness in the right contro-vertebral angle. Neither kidney nor the spleen were palpable. The abdomen was so rigid that it was impossible to definitely palpate the mass in the epigastrium, but a distinct edge could be seen moving with respiration. This edge was about a hand's breadth below the costal margin in the epigastrium and extended straight across to the right anterior axillary line. The percussion note over the mass was a dull tympanitic. The liver dullness extended above to the fourth rib in the right mamillary line and the dullness in the epigastrium and right hypochondrium merged with the liver dullness. On account of the rigidity, one could not palpate deep enough to detect whether or not there was any mass in the appendix region. The urine was a reddish brown in color, turbid, and contained bile and a faint trace of albumin. There was no blood. The patient was seen again on December 4th. He was still having violent shaking chills every day. Some days he would have two chills. The chills were followed by profuse sweats. The abdominal pain was about the same. The bowel movements were still very frequent, grass green and contained much mucus. At this visit he told me that three months previous to the onset of his acute abdominal pain he had been having much trouble with his stomach. There had been considerable pain and burning in the epigastrium. This was relieved by taking food. There had been much "sour stomach," and on one occasion he had vomited blood. He had not passed any blood recently in the bowel movements, but the preceding summer he had had dysentery and at this time he had passed blood.

On examination at this time he was seen to be even more emaciated. His eyes were bright. The jaundice slightly deeper. The tongue was red and glazed. The pulse rapid but of fair quality. The temperature was 102⅗. The abdomen was still much distended. There was quite evident bulging in the epigastrium and a diffuse pulsation visible here. Tenderness was very marked over the mass in the epigastrium and quite severe though not so marked in both hypochondriac regions. This mass gave suggestive fluctuation. The same edge was seen to move with respiration as was noted at the former visit. The percussion note over the area above the movable edge was, as before, a dull tympanitic, especially dull over the epigastric tumor. The dullness merged with the liver dullness. The mass could not be defined by palpation on account of the marked rigidity. A leucocyte count showed a leucocytosis of 18,400 per cubic mm.

It was quite evident that the patient was suffering from a severe septic condition of some kind. The merging of the dullness over the mass in the upper abdomen with the liver dullness, the descent of the edge with inspiration, and the jaundice all pointed to the process being in the liver, and the extreme prominence in the upper epigastrium showed that the greatest involvement was in the left lobe. The swelling here was so globular in outline, fluctuation was so suggestive and the history of dysentery last summer was so seductive that, without an examination of the stools for amœbæ, a probable diagnosis was made of solitary abscess of the left lobe of the liver. The history of the stomach symptoms previous to the onset of the trouble pointed to the possibility, however, of a slow rupture of a gastric ulcer, with possible suppuration in the lesser peritoneal cavity and secondary involvement of the liver, although the pain of onset was not typical. The mass was rather high up for pancreatic suppuration, but this was thought of. The tumor was too definitely in the epigastrium to be the gall bladder.

In conversation with a doctor who had seen the patient at the onset of his illness, he told me that he felt quite certain when he saw the patient that he had acute appendicitis, so it was considered possible that he might have suppurative pylephlebitis with liver abscess.

Operation was advised and two days later the patient consented. At this time he was in extremely bad condition. However, I felt so positive that I would find a solitary abscess in the left lobe of the liver, which I could evacuate in a few minutes, that I thought it advisable to operate. Accordingly on the morning of December 6th, his abdomen was opened through a left rectus incision under a light ether anesthesia. Upon entering the abdomen I found that what I thought was a solitary abscess of the liver was a very marked smooth enlargement of the left lobe. The right lobe was also enlarged but not to so great an extent. The surface of the liver was everywhere smooth and was of a mottled reddish brown and yellow color. It was quite boggy, but no area of fluctuation could be determined, and exploration with an aspirating needle could locate no collection of pus. There were no adhesions. The gall bladder and bile ducts were normal. There was nothing wrong with the stomach or pancreas. There was no pus beneath the liver. A mass, however, could be felt in the region of the appendix. By the time this amount of exploration had been completed the patient was in an extremely critical condition from shock, and did not admit of any further operative procedure without running the risk of death on the table. The wound was rapidly closed and the patient put back to bed. The diagnosis was quite evidently suppurative pylephlebitis with suppurative hepatitis, the abscesses being no doubt multiple and small in size. The greater

involvement of the left lobe of the liver was unusual. The patient lived six days after the operation. His rigors and sweats continued. He became delirious and gradually weaker, death being preceded by a low muttering delirium. Unfortunately it was not possible to obtain an autopsy.

Suppurative hepatitis following appendicitis has its onset never earlier than the fifth or sixth day after the beginning of the appendix inflammation. It may follow an apparently mild attack. The patient may seemingly be convalescing beautifully. There may be practically an entire subsidence of pain and elevation of temperature—a stage of "treacherous calm." The appendix may have been removed, say on the seventh or eighth day after onset of the attack, but the mischief may have already started in the portal vein and then the appendectomy is futile.

The chills occuring in this condition are most violent and the temperature rises high. The sweats are drenching. The liver enlarges rapidly and the enlargement may become enormous. The right lobe is usually more involved than the left, contrary to the condition in my case. The spleen shows no enlargement. There is great hepatic and epigastric pain, much nausea and vomiting, and diarrhea is quite a frequent complication. Jaundice may be early or late, slight or intense; the urine usually contains bile, albumin and casts. The general symptoms are typhoidal, the tongue dry and red. There may be intermissions in the disease with hopeful improvement, as in a case reported by Robins, and the patient may live for many weeks or months before he finally succumbs. Practically all cases are fatal, though they do occasionally recover. Hellstrom has recently reported two cases of spontaneous recovery and Treves and Koerte have reported a few others. The condition is fortunately rare, though Deaver has given the incidence as between one and two per cent of the cases of appendicitis. This estimate must be, however, rather high. The occurrence of the condition is unfortunately sufficiently frequent to give us pause.

The infection can usually be traced from the appendicular veins to the superior mesenteric, thence to the main portal trunk and finally to its ramifications in the liver. The abscesses are usually quite small and multiple, and are not visible on the surface. Occasionally an abscess may be seen bulging through Glisson's capsule. Very rarely there may be a solitary abscess. Koerte and Loisson have each reported an instance of this kind in which the operation was successful.

On section, the cut surface of the liver is variable. "The intrahepatic portal veins alone may be affected, and show, where cut, a dark red, firm, adherent clot, or a friable reddish gray clot, or fluid puriform

material. Extension from the veins to the hepatic tissue produces abscesses varying in size from a few millimetres to many centimetres. Their contents vary from a thin fluid to a grumous mass. Their color depends on the admixture of pus cells, hepatic elements, bile and blood. The walls may be smooth or ragged, and they are sometimes lined by granulation tissue. The abscesses are round or irregular in shape, anastomosing along the course of the venous trunks, or showing diverticula due to the parietal coalescence of adjacent cavities." (Kelly and Hurdon).

The microscopic picture is also variable. "The intralobular veins are filled by thrombi or by pus, with the walls practically normal and the liver tissue showing no change; or by groups of necrotic liver cells (central or focal necroses). The interior of the veins may also appear normal, although the pathologic process has begun to invade the wall, and the peripheral connective tissue shows leucocytic infiltration. Sometimes the latter condition exists without the presence of thrombi in the veins, and there is then an acute suppurative interstitial hepatitis without pylephlebitis. When necrosis and softening begin, there are abscesses, sometimes confined to the periportal connective tissue, but more often involving the liver lobules. These abscesses may be large or small, they may be widely separated, or the section may be thickly studded with them. The abscess wall is sometimes formed of liver cells, and these may be little changed, or they may be degenerated and much compressed; sometimes the walls consist of remains of the periportal connective tissue. Reparative changes may appear in the shape of granulation tissue lining the abscess cavity, which, if death does not ensue, eventually forms adult connective tissue. Liver cells about the abscesses may be evidence of proliferation. Degenerative changes remote from abscesses are generally prominent throughout the liver parenchyma." (Kelly and Hurdon).

A review of the foregoing consideration of the various phases of appendicular liver, both toxic and suppurative, leads us inevitably to one conclusion and that is, that medical treatment of appendicitis is dangerous. The only rational treatment is early surgical intervention—as early as is possible. As soon as the diagnosis can be made the appendix should be removed. By this means the hepatic and all other complications can be prevented and the mortality in skilled hands will be practically nil. As Dieulafoy says, "In appendicitis we must never wait, for we can never know what the future has in store for us."

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CLOSURE OF THE INCISION IN TIERS WITH THREE REMOVABLE CABLES.

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The process is practically a stringing of the tissues of either side of the incision on to a tight cable. This may be done in several different ways according to the indications of the individual case or the desire of the operator. One or more of the tiers may be closed by this method after the others have been closed by any other method.

In abdominal section the peritoneum, fascia and skin are closed with one cable to each tier. Any strong suture material may be used. Silkworm gut of extra size is very satisfactory.

One running stitch of strong silkworm gut on a medium sized needle is entered through the skin about one-half inch from one end of the incision and made to penetrate the tissues to the corresponding end of the incision in the peritoneum. A basting stitch is inserted so as to turn the raw edges of the peritoneum upward into the wound and close the peritoneal opening. The needle then penetrates the tissues to a point in the skin about one-half inch from the end of the skin incision opposite the beginning. When pulled upon this should slip easily in either direction, and as long as the cable is held taut the approximation of the peritoneum is perfect. Approximation may be maintained by only slight tension while the remaining sutures are being placed.

The fascia is closed in the same way except that the needle enters and emerges a little nearer the incision than for the first suture, and the fascia is picked up on each side of the incision in the same manner as a running Lembert suture, so as to turn the rough edge down towards the raw edge of the peritoneum which was turned up.

For the closure of the skin incision the needle enters still nearer the incision and a sort of haphazard long grasp subcutaneous stitch is placed, care being taken to have the needle enter and emerge through the lower edge of the true skin and to sweep well out laterally into the subcutaneous tissues. Near each extremity the grasp is not so long as at the middle of the incision. Tension on this suture will draw the margins of the skin only roughly together. But the epithelial edges will be

accurately approximated if, while the suture is held taut, a smooth board is pressed down upon the incision. This board may consist of glass, so that any slight crumple may be seen and adjustment made with probe or other instrument at hand.

When all the sutures have been placed they are brought up over the ends of the board, which is a little longer than the distance between the points of entrance and exit of the first suture, and their opposite ends tied to each other or fastened in some way that will maintain proper tension and approximation.

One or more figure-of-eight removable stitches transverse to the incision securing the margins of the fascia at various points and tied transversely over the board serve to completely fix the board and give the final dressing a more completed appearance.

A few points of advantage are:

1. It coaptates all the tissues perfectly by exerting pressure vertically, doing away with dead spaces and discouraging oozing and bloodclot.

2. It gives perfect coaptation of the edges of the tiers by exerting gentle pressure laterally at all points. This is most appreciable in the smooth coaptation of the epithelial edges.

3. It is rapidly and easily placed, with little traumatism by the needle and with no penetration through the epithelial surface of the skin.

4. All suture material of the wound may be removed at any time, leaving nothing of questionable nature to irritate or infect after the purpose of the stitch has been subserved.

THE FUNCTION OF THE HOSPITAL.

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In the State of New York there are forty-four varieties of hospitals. In the State of Texas a law was recently passed requiring every community of 10,000 people to construct and operate a general hospital.

Every doctor in this hall is connected with, owns, expects to own, or is trying to sell a hospital. A few years ago an interne had to use diplomacy, persuasion, or trickery to get some patients to the hospital. Today he has to use an emetic, a capsicum plaster, or the actual cautery to get some of them out of the hospital. This multiplicity of hospitals, this change in the attitude toward hospitals, is simply a part of the general progress as seen in other lines. Doctors know that they can render better service by the systematic and scientific methods of the hospitals than by the unorganized and inadequate methods at the home.

With all these changes that have been going on, only one-tenth of the sick go to the hospitals. It is the function of the hospital to render

service to the sick within and without its walls, and to conserve the health of the balance of the community. To put this proposition in a more concrete form, we will indicate briefly some of the activities of our hospital, and, incidentally, some of our methods of serving the community.

The Watts Hospital is an endowed institution, containing one hundred beds, arranged in wards and private rooms. It is constructed on the pavilion system, and situated on high, rolling ground overlooking the town of Durham. It is semi-public, in that we treat non-pay and pay patients. For the non-pay patients we have a staff of physicians for the various departments. We have the advantages and disadvantages of the large metropolitan hospital and the small town hospital; of the public and the private hospital; of the general and the special hospital; of the open and closed hospital. Now, most of you are doing the same things we are doing, trying to do other things as we are trying to do other things, planning for and dreaming of yet other things as we are planning for and dreaming of other things. We believe that the sick coming to our hospital deserve something more than a place to be improperly herded and poorly fed. We believe that we can reach many of that other nine-tenths of the sick, and show them that they can be cured; and we believe that the hospital has a function to perform in conserving the health of those who are not sick.

The public expects that same concentration and coöperation in the treatment of the sick and the well as they see in the industrial world. Happily, doctors have led and not lagged behind in this movement. Our whole hospital system, including doctors, nurses, major and minor employees, apparatus and appliances, natural and acquired advantages, is directed toward these activities. We endeavor to get all these forces working together for the purpose of serving the community. We endeavor to sink individualities into science and scientific methods, for, as Mayo says, "The day of individualism in medicine has passed." The doctors make or mar a hospital, and the hospital depends on them to progress along any line.

The hospital offers an opportunity to the doctor to develop all his latent powers, and to work in conjunction with others, all striving after the same ideals. In the hospital, doctors can consult together, work together, gather and compare facts together, and note results together. We are trying to standardize technical methods, trying to bring all the aids of the laboratory in making diagnoses and carrying out plans and methods of treatments. Our research and experimental departments offer opportunities to improve technique, to try out new operations, to test out theories, to search into causes.

One of our methods of noting facts and making comparisons is in keeping records. Since February 1st we have been using the card system of keeping surgical records, as suggested by the committee at the last meeting of the Congress of Surgeons (*Surgery, Gynecology and Obstetrics*, January, 1914). We are also using similar record cards in the other departments. The main points of this card system are that it has authority for being the standard to be used in hospitals, and that it follows up the case after the patient leaves the hospital. It follows up the patient to see if he is cured, and, if not, why not. These cards show if a certain technique produced more cures than some other technique. They show if catgut, silk, linen or kangaroo ligatures showed better results in hernia operations. They show if there were an unnecessary number of drainage cases in appendix operations. These cards show what anesthetics were given; if cases developed pneumonia after operations. They show duration of convalescence; they show if Mr. Jones went back to business two weeks quicker than Mr. Smith, after similar operations. (The bookkeeper can see if Mr. Jones did not pay the balance of his bill two weeks quicker than Mr. Smith).

The gynecological cards show difference in results after the conservative and radical operations on the uterine appendages. They show if Mrs. Jackson was cured mentally as well as physically.

The obstetrical cards show if one obstetrician used forceps oftener than some other, and if any complications arose to delay the time of the mother or baby at the hospital. They show if a repaired perineum performed its functions at the end of one year.

The medical cards show comparisons in the treatment of typhoid fever; if careful feeding produced quicker cures. They show that cases of chills and fever may be due to pyelitis, to gall-stone infection, or to abscesses of the liver.

The pediatric cards show end results in infant feeding.

Without going into further details, these cards give a history of the work of the hospital; they show facts and not theories. One of our methods of following up the card system, to find end results, is to write to the patients (with the consent of their physicians) one year from the date of dismissal from the hospital.

Another way is by sending a nurse to their homes. Especially in medical and pediatric cases do we use the nurse. We make it a part of the nurse's training in district service work. Baby Ruth Johnson remains in the hospital ten days, or until the proper food has been selected to fit her case. After she goes home we send a nurse to see if our directions are carried out. While the nurse is in the home she has a chance to note the surroundings. She has the best chance to in-

struct the mother and the father in the details of hygiene. She has a chance to show the importance of proper food, properly prepared. The nurse is only practicing what she has learned in our dietetic department. By this method we get definite results. We think this method accomplishes more than tons of pamphlets.

Recently, in some investigations on pellagra, we secured specimens of bread from pellagra patients. If you had seen and felt some of these specimens, you would realize what a field this is for teaching scientific cooking.

We are using systematic methods of reaching that large class of patients in and outside the hospital who "just feel bad" all the time, who don't know the joy of living. You may call their trouble neurasthenia, hysteria or hypochondria, and if you give it a name they only revel the more in their condition. These cases often tax and baffle the whole hospital system. If they can be taught that health, as well as sickness, is contagious, a great waste of nervous energy will be conserved to the community. Other methods of serving the community we are still trying to solve.

We hope to make the hospital system a team of specialists, and also to render the service of the fast disappearing family doctor.

THE USE OF THE X-RAY IN THE TREATMENT OF INOPERABLE CANCER AND SUPERFICIAL EPITHELIOMA OF THE SKIN.

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It would be out of place and indeed useless for me to review with you or to quote the various statistics as produced by means of Rontgenologists of the present time as to the value of the X-ray in its treatment of the above maladies. All of this information can be obtained by referring to your libraries, if any of you are interested in this side of the subject. It is my intention to present to you a few facts based entirely upon personal experience in the X-ray laboratory of the Highsmith Hospital, Fayetteville, N. C., and the numerous clinics which I have visited. I am sorry that I can not have present some of the patients, whom I have treated, with the various forms of malignant diseases, in order that I might make my subject plainer and more impressive to you. But to all of you who have seen cases treated with the X-ray, I am sure that you will not doubt the benefit sometimes received from this means of treatment.

As to the pathological changes which take place in the cellular tissues which have been exposed to the rays, I will not describe them. It is es-

sentially the diminution in the blood supply with granular degeneration of the protoplasm of the cells, with gradual absorption of the degenerative elements. This has been proven by microscopical study of the sections of the exposed area from time to time. The X-ray depends for its virtue upon the following facts, in the treatment of malignant diseases. It produces a constriction of the arterial blood supply to the diseased area, with gradual degeneration, which is the result of a decrease in the nutritive elements of the cellular tissues involved. This is true of the cancer cell, which is in itself more susceptible to the rays than those cells of the surrounding healthy tissues, therefore the quantity of current necessary to produce degenerative changes in cancer cells has not the same effect upon the surrounding tissue when properly used. If it were not for this fact, X-ray exposures would cause such serious burns that exposure of the diseased area would be inadvisable. The effect of the rays does not depend upon the quantity of the current passing through the parts, but, on the contrary, is dependent upon the amount absorbed by the cell through which the current passes. For this reason, as we all know who are acquainted with X-ray apparatus and tubes, the tube of low vacuum gives off softer and more absorbable rays than one of higher vacuum. For this reason a soft tube of low vacuum is preferred in treating superficial growths, while a higher vacuum is desired in one more deeply seated. The distance of the tube from the exposed surface, in my opinion, is of little or no value. I usually place the tube from four to six inches from the surface which I am treating and protect as much as possible the surrounding healthy parts, never using anything more permeable than lead plate not less than one-sixteenth of an inch thick, as the rays will penetrate any body including lead of less than one-sixteenth of an inch. Never expose a part longer than is absolutely necessary, being guarded by the reaction from the previous dosage. I do not recommend the use of the hand to regulate the strength of the current to be used, which some years ago was the common method used to determine the dosage to be given. It was at one time recommended that any tube that would give the shadow of the bones of the hand under a fluoroscope screen would be suitable for treatment. Personally I prefer a tube of low vacuum, sparking at about two inches, giving from three to five miliampers, varying from two to six minutes and usually about four minutes to a treatment. Three or four of such treatments will almost always give signs of a therapeutic limit, which is always an indication to discontinue the treatment until inflammatory signs have disappeared. These are reddening of the skin which was exposed to the rays, the occurrence of small blebs, dilation of the arterioles in the skin, and itching of the skin. A period of from ten days to

two weeks is required for such signs to disappear, and it is during this time that the most marked improvement is manifested in the growth. After giving these remarks to explain to you how the effect is produced or the way in which we think it is produced, I shall now speak of the application of this means of treatment to some of the forms of malignant diseases.

First. It is not advisable or even indicated to expose carcinoma of the breast or any other portion of the body to X-ray treatment when the consent of the patient can be obtained for radical operation. This is true with one exception, that is superficial epithelioma, especially on the face and where an excision would result in a scar noticeable to every eye, not only the professional man but that of the laity, for which reason many people object to the removal of such growths.

Second. The X-ray treatment is preferred because all the cells of malignant character are destroyed when the growth is removed by means of the X-ray, whereas if excision of the growth is practiced, it is possible and often true that some of the cancerous cells are left in the tissues and sooner or later will reoccur. This of course may occur in the growth when treated by the X-ray, but it is not nearly so likely. I have seen a number of epitheliomas cured by the X-ray which have remained cured for a period of from five to ten years.

Another advantage over the knife is the fact that in many instances where the growth is extensive removal would not be practicable. Again, it is true in epithelioma, especially when involving the nose, eyelids and in many cases of the lip, for here removal would give rise to severe and permanent deformity. I now have a patient under my treatment who has suffered from extensive epithelioma of the nose and will not submit to operation. In fact removal by operation should not be practiced, as a removal of the nose would be necessary to bring about a cure. She is responding nicely to treatment at the present time. She has had three exposures and a perceptible change has been noticed and I predict that she will recover. During the past five years I have treated 108 epitheliomas, principally of the face, varying in size from a split pea to that covering one-half of the back or side of the neck, and in not a single case have I failed to secure as yet a permanent cure without a single return and with very little scarring, without contraction of the skin, in this way reducing deformity to a minimum. The number of treatments necessary to remove a growth depend upon the character and size of the growth and the amount and character of the current used. The number of treatments usually ranges from four to twenty. Treating them every three days until a therapeutic reaction is secured, then a period of rest for twelve or fifteen days until the inflammatory signs have disap-

peared, then treatment is resumed, the frequency of which can be regulated by the reaction produced in the tissues, but usually given at greater intervals and shorter exposures than those of the initial exposures. It is always advisable to instruct the patient to never apply ointment to the growth while under treatment; this will aid you in ascertaining fully the effects of the rays upon the skin. Any portion of the skin naturally exposed to the atmosphere, such as the face or hands, will stand a more vigorous exposure than will the skin protected by clothing. Especial care must be exercised in the treatment of any growth located in the axillary space or groins, as in those areas the skin is very susceptible and care must be exercised to prevent serious burns. In the treatment of inoperable carcinoma of the breast, tongue or any other portion of the body, it is not advisable and really is an injustice to X-ray therapy, for the simple reason that a failure to cure is not charged to surgery but to the X-ray. For this reason a thorough explanation should be made to the patient and he or she should be told that the exposures are not given with the intention to cure but to relieve pain, constrict the blood vessels, reduce hemorrhage, in this way making the patient more comfortable and in a more or less degree arrest the rapid growth of the disease. In many cases I have found that the X-ray exerts its greatest beneficial influence in carcinoma when a radical operation has been performed with hope of recovery, and in spite of the surgeon's efforts, soon a small pea-size growth can be felt, meaning a recurrence of the carcinomatous growth. It is in this class of cases that the X-ray is of decided value. In this particular class of cases, I have had a happy experience with several patients. At the present time I have under treatment a lady who was operated upon two years ago for medullary carcinoma of the breast. Two months after operation it reoccurred in the form of several hard pea-size masses in the sin. X-ray exposures were at once instituted, reaction secured in three weeks, making a total of six treatments. Treatment was discontinued for ten days and when the inflammatory signs had disappeared the recurrent masses had also disappeared. I saw this patient one week ago and there are no signs of recurrence whatever. The skin and underlying tissues are smooth and the patient feels well. Such cases are to be kept under careful observation and if at any time these masses appear, then several exposures should be made and same removed. It is in such cases that the X-ray is of decided value over the knife.

In conclusion, I would state that X-ray therapy plays its most important part in the treatment of superficial and extensive epitheliomas of the face and hands; second, in the removal of recurrent carcinoma in soft tissue, where a primary operation had been performed in the be-

ginning, but such being a failure, then, as stated above, X-ray therapy is of inestimable value in arresting such recurrence of the primary disease; third, to relieve pain and hemorrhage and to some extent arrest the rapid progress of inoperable carcinoma.

NITROUS OXIDE-OXYGEN IN THE INDUCTION OF ANOCI-ASSOCIATION ANESTHESIA.

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In this age of commercialism and speed when man is able to command and does insist upon every available means to aid in his comfort and care, the medical profession is called upon to contribute to that end and eliminate objectionable features from this highly sensitized being, whether it be the prevention of typhoid or attending the obsequies of an ambitious appendix. This has almost become an age of operations and what patient has not the dread of pain and dangerous weakness brought on by the surgeon's scalpel, with the attending long-drawn out post-operative discomfort? It is our duty and object to alleviate this condition, and from an operative standpoint, following the example of Crile, we believe that we have done so, as far as science is able with our present facilities. All of you are more or less familiar with the results of nitrous oxide-oxygen narcosis, but it remained for Crile to work out the harmful effects of anesthetics on the brain and devise the combination of local with general anesthesia and its resulting subjugation of shock, for which he has coined the term anoci-association. We believe shock to be the greatest element in the success or failure of most cases today. Whether we are able to determine definitely just what constitutes the element of shock, it still remains our greatest surgical danger since the development of our present aseptic technique. I might go so far as to say that no operation, however slight, is accomplished without its attending shock, even without anesthesia, and how greatly aggravated is this by the chemical action of agents which, while producing sleep, do not inhibit the conductibility of nerves and prevent trauma of tissue. While I do not wish you to infer that shock is always dangerous, I do wish to emphasize the importance of it as an inhibitory factor in the convalescent period, and the cause of most of the mental anxiety and attention by the surgeon, for I believe our profession is one in which the humanitarian instinct is still the dominant factor.

WHY CHOOSE NITROUS OXIDE.

Bearing these facts in mind we take stock of our present anesthetics and by a process of elimination arrive at the one we believe least harm-

ful. So much has been discovered and said about the harmful effects of chloroform during the last few years that it has been recommended by the Council on Anesthetics of the A. M. A. that its use be discontinued entirely. In our country this would not be a hardship, for very few persist in its use, even occasionally. This leaves us to the relative consideration of ether and nitrous oxide as a general anesthetic. Consider the disagreeable induction of narcosis with ether, its lipoid dissolving power, its irritating effect upon all mucous membranes, hemolitic power, primary increase of blood pressure and secondary fall of pressure, power thrown on the kidneys, nauseating after-effect and persisting taste, due to its slow elimination, and prostration for several days following its use. Nitrous oxide is practically odorless and produces narcosis by preventing the blood from taking up oxygen, narcosis is produced in a few seconds, it is very effervescent in its action and quickly eliminated, leaving the patient most often with only the memory of a pleasant dream. The argument may be advanced that the narcosis is not complete, patient is not relaxed or even struggles, all very true when used alone on abdominal operations or where there is much trauma, but with the aid of the anoci-association this is overcome. By telling the patient of the ease and comfort with which they are going to be put asleep we gain their confidence, so that narcosis, once the greatest dread of the patient, is now hardly mentioned by them. To aid us further in this, as a preliminary to the operation we always give them a hypodermic of morphine $\frac{1}{8}$-$\frac{1}{4}$ and scopalamine $\frac{1}{200}$-$\frac{1}{150}$ one to two hours previous to operating, and the patient is brought to the operating room almost in slumber, care being taken that they are kept quiet and not made conscious of their surroundings by unnecessary noises. Under nitrous oxide they are almost invariably asleep in one minute and as soon as the operative field is prepared, the second and most important step is taken. This consists of infiltrating the line of incision with novocain solution, and each subsequent layer, previous to incising, taking care to see that the peritoneum is well infiltrated. Where the operation requires much time and considerable trauma in handling the tissues this is reinforced by quinine and urea hydrochloride. Now with the sensitive area shut off from the brain the operator may proceed with a tranquil patient and entirely flaccid abdomen or part. The use of gas has the minimum amount of shocking effect and, by blocking the field with novocain, communication to the brain is cut off, thus minimizing the shock, as shown by the experiments of Crile. I wish to emphasize the importance of the local with the general anesthesia, especially in the elimination of shock, and to say that it requires considerable experience and care to be successful. We believe from our experience and close observation that

our operations are conducted with the minimum amount of shock as evidenced by the general condition of the patient during and following the operation. In only one case has there been a rise in the pulse rate under narcosis. (In this connection I might add that the almost bloodless method and gentle manner in which the tissues are handled by Dr. Long is a powerful adjunct.) The patient is usually smiling and unconscious of having been operated upon, though entirely awake before leaving the operating room. To follow the patients on their return to the room, see them put to bed without the necessity of an attending nurse, the remarkably rapid recovery even from serious operations, to see a mother nursing her three months old babe the same day upon which she was operated, and another woman sitting up the same day on which she had a radical operation for carcinoma of the breast is indeed gratifying to the surgeon and anesthetist as well as the patient.

CO-OPERATION OF SURGEON AND STAFF.

In all operations there should be complete understanding and hearty coöperation between the surgeon and his corps of assistants, and especially is this applicable to his anesthetist. My conviction is that it is poor surgery to indiscriminately choose a man, often the family physician, for this most important adjunct of an operation. In all cases it should be a man specially trained to this work, one of more than average ability to detect the minute changes in the patient's condition, or even anticipate them before fully developed, and act accordingly. In the administration of gas the technicalities render a trained man imperative, but it should hold equally good with any other form of anesthesia. The operator should have the utmost confidence in his anesthetist so as to leave his mind free to work out problems that so often rise in the course of his work. Too few surgeons lay enough stress upon the efficiency and coöperation of their corps of assistants. I might add here that I believe a large part of our success is due to the hearty coöperation and harmonious working together of each unit in the operation. Coöperation of surgeon and anesthetist is essentially necessary in this form of anesthesia, because there is not the profound relaxation which obtains under ether and the operator leans to the aid of his anesthetist, and incidentally helps the patient by his careful manipulations and avoidance of traumatizing the tissue.

LIMITATIONS OF ITS USE.

So far in several hundred cases we have found no limitations to its use except in infants; here we have not had the temerity to try it. The severest and most critical cases act remarkably well, due, we think, to the

lessened shock. We have used it with impunity whether the patient were white or colored. However, gas should not be used unless you have a man familiar with its administration and by such an one it is far safer than ether. With an experience of several thousand cases of ether without alarming symptoms I still feel safer in administering nitrous oxide, because there is so little shock to its use and its dangers are mostly technical and controllable. I recall one case of an old lady with ascites, from a bad heart and kidneys, so severe that she was unable to lie down and had to sit up on the operating table during an operation of twenty minutes. There was absolutely no change in her condition under the anesthetic and she woke up fussing, saying, No, she was not going to have an operation.

To summarize the principles embodied:

1. The preliminary tranquilization of the patient by an injection of morphine and scopalamine.

2. The complete blocking off of the operative field by thorough infiltration with novocain, aided by quinine and urea-hydrochloride when necessary.

3. The use of nitrous oxide-oxygen as the general anesthetic.

Our results with this method have fully justified us in the additional expense, and the patient's terror of going to sleep has been overcome, and I have heard them remark that should they need another operation they would not dread it next time.

THE SOURCES OF INFECTION BY TUBERCLE BACILLI.

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The State of North Carolina has placed its tuberculosis work in the hands of such competent authorities that the success of the undertaking is assured. The general policy adopted coincides with that governing tuberculosis work throughout the civilized world, which is based upon the belief that tubercle bacilli cannot live outside the human body. Because we believe that tubercle bacilli cannot be found living independently of human beings, we assume that tuberculosis is comparable to syphilis, and that the organism causing the disease does not live anywhere save in its host, and therefore the only way to perpetuate the disease is by the transmission from one human being to another of the infectious agent, either by sputum or some other means. If we can prevent this transmission we can obliterate the disease.

If we should succeed in preventing this transmission from one human being to another there would still remain the tuberculous cases caused

by infection with bovine tubercle bacilli. According to Orth there are in Germany two hundred thousand cases of children's tuberculosis caused by the bacilli of cows. If conditions in the United States are at all comparable with those in Germany, we would have three hundred thousand cases of bovine tuberculosis among our children, and these would persist and be augmented from year to year, so that tuberculosis would not be obliterated even if every link in the chain of human transmission were broken.

We can prevent the bovine tuberculosis of children by sterilizing the milk, and butter and cheese, but to secure greater safety for the children, attempts are being made to keep the herds free from tuberculous animals. Brooks says: "Practically all the world's records as to fertility, milk and cream production are held by animals, either themselves tuberculous or who are the offspring of tuberculous ancestry." In Germany there is an annual loss of ten million dollars from tuberculous cattle, and in spite of the most vigorous efforts by the German government, the percentage of infected animals is steadily rising. It has been found impossible to keep dairy herds free from animals infected with tubercle bacilli, so that the attempt has been given up, and only open cases are now removed. Our interest in the tuberculosis of cattle is not confined merely to their ability to transmit infection to us. We find in this almost universal presence of tubercle bacilli in cattle much that requires explanation and that is analogous to our own conditions. If we can understand why cows are so universally infected, we may understand why all our children have the same infection by the time they reach maturity. The point of greatest interest for us is the answer to the question why cattle should be so subject to infection by tubercle bacilli. What is the source of these infections? Either all these cattle are constantly infected and so hand the tubercle bacilli on to the next case, or else there is some outside source of infection. Either the herds are composed of animals that are carriers of tubercle bacilli as a part of the phenomena of their existence, or else they must become infected from other sources. If each animal is a carrier of tubercle bacilli, what is the use of trying to prevent infection? We find the tuberculosis of hogs equally instructive. Ryder says: "At the post mortems held by the bureau inspectors over a consecutive period on 120,000 hog carcasses, 93.3 per cent were found to contain tuberculous lesions in the superior cervical glands (in almost all cases the sub-maxillary gland)." Why? Again we have the same answer, either widespread infection transmitted from case to case, or new cases from an outside source. In either case, the infection is practically inevitable until we have more information as to where it comes from.

And what shall we say when the same question is asked concerning the infection by tubercle bacilli of sheep, goats, dogs, cats, rabbits, birds, chickens, turkeys, snakes, lizards, frogs, turtles, fish, etc.? Shall we say that the tubercle bacilli peculiar to each species is imperatively restricted to its host, cannot live anywhere else, and that therefore the disease can only be perpetuated in each species by direct transmission, and that if we could break this transmission we could destroy the disease in this species? Or does it seem more probable to infer that in each species we have the same general cause modified by its host but related to all the other tubercle bacilli, equally modified by their hosts? The tubercle bacillus of the turtle and frog would thus be the same as that of the cow or chicken in its origin, and belong to the same family; its distinguishing characteristics would be cultural and due to environment, but the biological characteristics would show that originally it came from the same family that had infected so many species of animals in precisely the same way. The tuberculosis of the lower animals is the same disease as ours, produced in the same manner and by the same class of organisms. No matter in what species of animals it occurs, the conditions are identical. May we infer that what will cause the disease in one species will also cause it in another, and that what is true for one is true for all? We need to comprehend this phenomenon of tuberculosis, not from the standpoint of a disease of mankind and as a unique manifestation of a unique cause, but from the viewpoint that it is a universal manifestation of a universal cause, so that the comprehension of one is the comprehension of all. Three reports of tuberculosis of men were recently made that illustrate this point. It has been known for some time that the tuberculosis of hogs was in some instances caused by the tubercle bacilli modified by residence in poultry; three cases of poultry tuberculosis have been reported in men. What does this suggest? These cases show that there is a second outside source of infection besides that from cows, and also obtained from food in all probability, and quite possibly from eggs, for they frequently contain tubercle bacilli and soft boiling does not kill them. Are there any other outside possibilities of infection besides butter, cheese, milk, and eggs? There must have been some other original source for the lower animals, what could it have been? Each animal could not have originated an organism absolutely peculiar to itself and yet biologically related to all the other organisms of all the other animals manifesting the same disease. To assume that these tubercle bacilli are and always have been imperatively restricted to residence in their host is improbable. It is much more logical and probable to infer that all were derived from a common source and distinguished by cultural character-

istics only from each other. Does this apply to the tuberculosis of human beings? Logically it should, but we do not know whether it does or not, because no research work on this point has proven or disproven the question. Much research work is done to prove whether or not bovine bacilli are responsible for the tuberculosis of man, and the bacilli of the lower animals have also been carefully studied from this standpoint. The interest in the tubercle bacilli of any animal has been confined exclusively to its ability to induce tuberculosis in mankind; if this proved to be impossible, only scientific interest remained, and all practical importance was denied. There is a much broader principle than this involved, and that is the possibility that the differentiation of the human bacillus from a common, outside source of supply is still proceeding and still a factor in the universal infection of our children.

Acid-fast bacilli are so commonly found in clinical work that they have no diagnostic significance and have come to be regarded as unimportant acid-fast bacilli unless clinical tuberculosis is found, when they are called tubercle bacilli. It is obvious that the nature of an organism is not changed by the presence or absence of clinical tuberculosis. It is quite possible that what we should report is that acid-fast bacilli are found, but that as yet no trace of tuberculous processes can be detected. This would express a truth of great value. It expresses the possibility that acid-fast bacilli are more or less constantly resident in the human body, and that this residence may lead to the production of tubercles and the disease of tuberculosis. In cows the presence of acid-fast bacilli is of such common occurrence throughout all the tissues and secretions that we expect to find them as a matter of course. Where do they come from? Probably from the food and drink, because they are universally present in both. Everywhere in Nature we find them growing upon all conceivable forms of plant life. Wherever there is moisture and organic life, there we find acid-fast bacilli. Even in the laboratory they are extremely annoying because they are constantly found in the distilled water. Let us sum up these undisputed facts and see if a new significance may be attached to them. Acid-fast bacilli, universally present in the food and drink of animals, are found commonly present in the tissues and organs and various fluids and secretions of these animals. When tubercles are present these same acid-fast bacilli are found in them. The relationship of these acid-fast bacilli to the production of tubercles is recognized as a casual one; no one disputes this fact, that all tubercles in all animals are caused by the presence of acid-fast bacilli. Now we have to determine whether or no there is any relationship between the acid-fast bacilli of

the food and drink, and tissues and secretions, and tubercles of these animals. Is it possible that the universal presence of these bacilli in food and drink results in their constant ingestion and dissemination throughout the tissues of the animal and their excretion in urine, feces, and milk; that this is a perfectly normal phenomenon and part and parcel of the life history of these animals, unavoidable and harmless; that in a small percentage of the whole population these bacilli assume pathogenic properties and cause the production of tubercles? In both cows and man these proportions are the same. As a rule, the percentage of infections is large, that of development of tuberculous processes is small; in both man and cows it is two per cent of the total population. The facts suggesting the etiological relationship of the acid-fast bacilli with the acid-fast tubercle bacilli are as follows: Any tubercle bacillus yields an extract which will provoke a typical tuberculin reaction in any animal defending itself against any tubercle bacillus; a tuberculin from a frog bacillus or sheep will provoke a reaction in a sensitized hog or cow; so will an extract made from the acid-fast timothy bacillus or that growing on the grasses. The tubercle bacilli of one animal will often provoke the production of tubercles in other animals; so will the bacilli growing on grasses. The common grass bacillus of the acid-fast family will provoke typical miliary tuberculosis when inoculated into rabbits. Maher took a saprophytic acid-fast bacillus and produced a tuberculin with curative properties. Lubarsch inoculated his arm with timothy bacilli, with the common, acid-fast timothy bacillus found growing on timothy hay and produced a typical tubercle that was diagnosed as an autopsy tubercle by a celebrated diagnostician. Every day reports are coming in showing the close relationship of all these acid-fast bacilli to each other and to the tuberculosis of man. The weak point in the chain is the inability to find other than three varieties of organisms in the tuberculous lesions of man. This is accounted for in two ways: The modification due to residence, and the atypical variations from the bacillus of Koch. Rabiniwitsch is strongly impressed with the variations in type, both in human and bovine bacilli. At the two extremes we have the well-identified, perfectly typical organisms; between these types are a world of more or less ill-defined, atypical organisms that do not classify well. Besides these variations, we have the different stages in the life history of these organisms to consider. What is sufficient to define and detect with certainty in one stage, is not true of another stage in the development of these organisms, and we have a great deal to learn of their life history before they finally become acid-fast and rod-shaped. Summing up our knowledge of these complicated problems we find that we have a few well-established facts, but that the significance of these

facts remains unproven, and that much work must be done before we can know definitely just what this universal infection of the animal world by tubercle bacilli means. We are today right where we were soon after the discovery of the bacillus was made by Koch, and little advance has been made since then in the comprehension of the phenomenon of tuberculosis as a whole. Before any further advance in tuberculosis work can be made, we must know why our children are universally infected, and what is the source. Until we know the origin of the infection we cannot successfully combat it. The prevention of transmission from one human being to another can never keep our children from becoming infected, nor from the development of tuberculous processes. We can strain every pocket-book in our State to care for manifest cases and to relieve suffering and promote recovery, but if we took care of every case of tuberculosis in North Carolina, we would still have this crop of ever-developing cases contemporary with the development of our children. Every year will see the fruition of these infections. Every year their victims will fall by the way, not because the disease has been acquired from some other case, but because the infection has developed until the day of its manifestation has come. If the toxins affect the health, they are discovered sooner than in cases relatively unaffected by them. Of the manifest cases discovered in the year 1914, we may say that the date of their manifestation is determined by the influence the tuberculous toxins have had upon health. If a focus of production is too small to be betrayed by any physical signs, and only with difficulty revealed by the X-ray, and the toxins are not well borne, the whole nutrition of the body suffers and the child is mentally, morally, and physically below the standards. If the effect of the toxins is less marked, the manifestation is correspondingly delayed. Take the infants born during 1914. Some will sicken shortly after birth, others during the first year, others during the second, and so on; in accordance with the manifestation of the effects produced by the toxins, these cases become evident. It is not that this child has been exposed in one year and that in another corresponding to the year when the diagnosis is made, but the revelation of what has been preparing for an indefinite time. It is the development of tuberculous processes that have finally become manifest when the diagnosis is made that we have to study and to realize that the danger from tubercle bacilli is not altogether from exposure, but rather from the development of an infection inevitably acquired. Since all our children are infected at maturity we cannot prevent this infection. Since in only 2 per cent tuberculous processes prove dangerous, the future problem of tuberculosis work is how to prevent the development of these dangers—from these infections which we cannot prevent. During the years of

growth one child after another falls by the way and is recognized as tuberculous; the next year the same thing happens; every year some fall out and some go on, because some sicken and some do not. The important truth deduced from this fact, that tuberculosis is only discovered when it induces sufficient manifestations, is this. The sick fall by the way and therefore the future victims are well or apparently well children. Tuberculous processes are perpetuated in well children and adults. In order to attain their complete development, tuberculous processes have to be concealed by good health and strength and working capacity, or they would be discovered and arrested. It is only in well people that these processes can work their way slowly from point to point until the lung is destroyed and the opportunity for recovery is lost. When a man in the full vigor of health and working capacity drops as though struck by a blow and his working days are over, it is because tuberculous toxins have not affected him in any evident way, and therefore their production has remained concealed. We know that this final catastrophe is not due to recent exposure, but because the long development of tuberculous lesions has at last become manifest, and we also know that if this developement had been discovered, the sad ending might have been averted at any time during all the years when good health and strength misled us. All tuberculosis workers know full well that it is delayed diagnoses that kill; that if we could discover the danger in time it would not be difficult to overcome it. It is delay that means death; how shall we turn from our ways and seek safety? Chiefly by not waiting until the effects become evident. We must all know that good health and working capacity are reasons why tuberculous processes remain undiscovered and not detected and the patient dies. When we begin to look for tuberculosis before it is manifest, we shall begin the true prevention of the disease. Before the profession can be convinced of the truth of these statements they must have the backing of authority. Before our exceedingly conscientious and capable Public Health Service can place these truths before our people, they must be convinced of their truth. Where can a busy health officer obtain this information? Where is it accessible for his use? Nowhere. It is only the specialist in tuberculosis work that has time to read the thousands of reports coming in from laboratory workers the world over, and though the specialist sees the drift and the significance of these reports, he will find it difficult to make his vision prevail. We need an authorized body whose statements will be accepted by the profession, to go over all these reports, to check the work up, and control it by research work. We need a tuberculosis commission to investigate the problems preventing a clear conception of the disease. They will show us that our comprehension of tuberculosis is faulty and that

progress cannot be made until the impression that tuberculosis is well understood is converted into the realization that we know almost nothing about it. The current supposition that tuberculosis problems have been worked out shuts the door to advancement of understanding. We must first of all know more before we can do more. Today we are ignorant of the first requisite for proper work, we know nothing concerning the source of the infection. That we think we know is worse than not to know. We should have a tuberculosis commission for the establishment of comprehension and solution of the problems confronting us. What is the best way to get this commission? Have some one go to Rockefeller or Carnegie or the Federal Government? That I cannot presume to advise, but I can say this, that as long as we go on working in the dark as we are now, so long will tuberculous processes work their way in the lungs of well people undiscovered and undisturbed. The first and most important requisite is, to call for help, for knowledge, for comprehension. If the Medical Association of the State of North Carolina could feel the necessity for this help as strongly as I do, I am certain that the wisdom of its members would find a way to establish this commission. A delegation might be sent to the meeting of the A. M. A., at Atlantic City, which would place before the Board of Medical Education and the Council for Research Work the lack of knowledge and its deplorable consequences, and ask that the matter be taken into consideration in order to obtain such an investigation as is now being made at the Rockefeller Institute for Research into the cancer problem. A disease that counts 1,200,000 victims among our people, and the loss of $900,000,000, or enough money to build three Panama Canals every year, is deserving of the most enlightened and effective methods of restriction.

It has been estimated that there are ten thousand cases of tuberculosis in North Carolina. For every manifest case there are seven concealed ones—seventy thousand cases—and the perpetual possibility of danger from the development of the infections of our children. Is not this problem of sufficient magnitude to impel us to ask for help, not for money—but for brains—for knowledge—for comprehension of the source of these infections? Realizing our helplessness—and that our work is palliative rather than preventive—I offer the following resolution:

WHEREAS, The infection of our children is practically universal—and the present state of our knowledge shows no way to prevent these infections; and

WHEREAS, The impossibility of advancing in our tuberculosis work without more information is fully realized, be it

Resolved, That the Medical Association of the State of North Carolina appoint a commission to place this lack of knowledge before the American

Medical Association at the next meeting in Atlantic City, June 22, 1914, and ask that the solving of tuberculosis problems be undertaken by a special commission.

THE PROPER USE OF THE FORCEPS IN OBSTETRICS.

K. G. Averitt, M. D., Cedar Creek, N. C.

Much has been said and written about the use of forceps. Some make frequent use of the instrument, some very rarely use them, and some seem to think they are too dangerous to mother and child to be accorded a place in the obstetrician's armamentarium.

Experience gained at the bedside, the best of all schools, convinces the practical obstetrician that the first class are guilty of meddlesome midwifery, that the second class are guilty of negligence, and that the third class is too narrow minded to deserve even passing notice, because he finds the instrument a very valuable one when properly used and a very dangerous one when improperly used.

It is never justifiable to use the forceps in any case in order to save time to the practitioner, and it is not good practice to use them in cases that nature is conducting safely. On the other hand, their use in cases in which they are indicated should not be neglected till it is too late.

In view of the above facts, the question naturally arises, "What are the indications for the use of forceps and what are the qualifications necessary to enable the physician to properly use them?" In a general way it has been said that inability of the mother's expulsive forces to overcome the obstacles to delivery is one of the most frequent indications. This is true, provided that we cannot reinforce her expulsive forces by better means. Formerly it was a very difficult matter to increase the force of the pains. Many drugs have been recommended to increase the force of the pains, but with the exception of quinine, very little can be expected from them, and this drug is so uncertain and unpleasant in its effects that we cannot depend on it. Recently, however, pituitrin has been brought forward as a reliable remedy to increase the expulsive forces, and clinical experience convinces us that it is a very valuable agent for the purpose. Many cases of uterine inertia occurring in multipara, in which the forceps were formerly used, can now be safely treated with this agent, provided the cervix is fully dilated and the diameters of the pelvis are normal. It should never be used before the cervix is fully dilated and should not be used in primapara. The forceps are to be preferred in all cases occurring in the latter in which it is necessary to render aid to the mother.

The forceps are also indicated in cases which require that delivery

should be accomplished rapidly, either in the interest of the mother or child, provided, for other reasons, they are not contraindicated. Under this head may be mentioned certain cases of accidental hemorrhage, prolapsus funis, rupture of the uterus, and of eclampsia, or in cases of placenta prævia to hold the head down in order to make it act as a tampon.

Forceps should not be applied to a hydrocephalic head or a decomposing fœtus, because the instrument will almost certainly fail to hold and will very probably do the mother much harm.

Forceps should not be used until the os is dilated. There are exceptions to this rule. When the maternal or fœtal life is threatened, the instrument may be used through an os not fully dilated, but such conditions are rare, and as we increase in obstetrical knowledge they become more and more rare. The forceps should not be used in any case where the diameters of the pelvic canal are so much below the normal measurement that we know there is very little if any probability of delivering a living child. To drag a child through a pelvis that is so much contracted that it is impossible to deliver a living child is, in my opinion, little short of criminal in this age of surgical enlightenment. A Cæsarean section, a symphysiotomy, or a pubiotomy should be done in all such cases. The only reasonable excuse for such cases at the present day is isolated cases occurring far from a hospital, and in places where it is impossible to secure competent help. These cases only occur in the practice of men like myself, whose practice is confined to the rural districts and even in these cases we can generally remove the patient to a hospital, or get competent assistance if we put forth the proper effort. There is certainly no excuse for the use of forceps in such cases occurring in towns where hospitals and competent assistance are always to be found. Forceps should not be used until the head has engaged in the superior strait, unless it be in cases of placenta prævia with the head presenting, and even in this complication other methods of delivery are usually preferable.

In cases of face presentation with the chin posterior, it is impossible to use the forceps, and this should always be borne in mind by the beginner, or he will do the woman irreparable harm.

These indications for the use of forceps are the ones most frequently occurring in the practice of the general practitioner; others may occasionally arise, but by carefully observing the above indications we can form an intelligent idea when to use the instrument.

As for the qualifications necessary to properly use the forceps, almost every man graduating from a medical college thinks he is competent to use it, but men of riper years know this is a sad mistake. To

properly use the forceps the physician must remember that it is designed mainly to reënforce the *vis a tergo* in labor, not to supplant it; he must have a thorough knowledge of the diameters of the pelvis and those of the fœtal head; he must thoroughly understand the axes and planes of the pelvis; he must be experienced in listening to the fœtal heart sound, because if the sounds should drop to 100 per minute, there is a great danger that the child will be born dead and it becomes necessary to deliver rapidly to prevent this unfortunate accident; he must be thoroughly trained in asepsis and anesthesia; he must know the functions of the forceps, and above all he must have absolute control of himself.

Most of these qualifications are fully discussed in the text-books, but strange to say the authors give very little space to explaining the functions of the forceps, and all neglect the personal equation when it comes to self-control or keeping cool.

The chief function of the forceps is that of a tractor, another function is that of a rotator, but this is a dangerous function and in my opinion should not be used by any but an experienced operator; another function sometimes employed to dislodge the head from its impacted position is that of a lever, but this is seldom brought into use, and last of all, but most dangerous of all, the forceps may be regarded as a compressor. Of course, some compression is necessary to make the instrument hold and is unavoidable, but the constant aim of the operator should be to reduce the compression to a minimum by using an instrument with a proper cephalic curve and by frequently relaxing his grip on the handles. They never should be used as a compressor *per se*.

The last and by far the most important qualification in using forceps is to have absolute control of yourself. No man should attempt to use the forceps who cannot control himself. To be able to control yourself requires long and careful training and this training cannot be obtained in low-grade schools and schools with weak faculties and limited clinical material. A school to give the necessary training must have trained and experienced men, and must have abundant clinical material for bedside instruction. A school with such facilities for teaching will do all that a school can do to properly instruct its students and to turn out competent obstetricians, but the man must also do his part while attending the school and after leaving the doors of his Alma Mater. Some men naturally have more control of themselves than others, and are therefore better fitted for the practice of obstetrics, but almost any man with the necessary book knowledge, and good common sense, can make a reasonably good obstetrician if he will closely apply himself and keep cool. To get excited and brace both feet against the bed, and pull as

though trying to pull a drowning man of a river, is inexcusable. Always remember there is plenty of time to get your thoughts together, then use your knowledge of the mathematics of the child's head and the mother's pelvis and make your traction downward and backward in the axis of the superior strait till the head is beginning to escape under the pubic arch, then begin your extension and carefully watch the perineum to prevent a laceration. Always remember that the traction should be intermittent, not continuous, so that the child will have a chance to live and the mother to escape injury. In other words, we should imitate nature in her management of a case. No woman could live, and no child could be born alive in a labor case lasting several hours, if the pains did not intermit, and the same principle applies to the forceps. Also remember when you cease traction to hold the handles of the instrument lightly, or if using one with a screw lock to loosen the lock, in order that the brain of the child may receive a supply of blood, and that rotation may not be interfered with.

Used with judgment and a cool brain the forceps will save much suffering, and do no harm, but used in any other manner, they are exceedingly dangerous and should be left at home.

SURGICAL TREATMENT OF ASTHMA, WITH A REPORT OF TWELVE CASES RELIEVED OR IMPROVED.

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It is a current opinion among the laity that asthma is incurable, and they seek only relief of the spasmodic attacks. It is unfortunate for the victim of so distressing and disabling a disease to accept as incurable a condition that in the majority of cases is amenable to treatment—a disease more made than inherited, thus the cause ought to be removable.

First. Asthma is primarily a toxemia from errors of intestinal putrefaction of proteid or carbohydrate diet and errors of metabolism.

Second. Microbic toxemia, especially of the accessory cavities of the nose.

Third. Reflex asthma from obstruction and pressure in the nose.

The debatable question, whether asthma is a disease or symptoms, between the general practitioner and specialist should cease, and they should join hands in coöperation to relieve these intense sufferers: The internest to direct his dietetic and hygienic habits of living; the specialist to put the nose naropharynx and its accessory cavities in as near a normal condition as possible, which is the upper respiratory tract supplied by the fifth nerve and its ganglions, which accounts for

the reflex action through the pneumogastric nerve to the bronchial circular muscles, already hypersensitive by the toxemia.

Asthma from toxemia from errors of digestion, intestinal putrefaction, constipation producing toxins which are absorbed by the circulation, and asthma from errors of metabolism, caused by a disturbance of the mysterious internal secretion, are amenable to treatment: First, by removing the cause of the toxins; second, by increasing the elimination of the toxins through the bowels, kidneys, skin and lungs, preventing an accumulation of the toxins in the circulation to that point which produces the asthmatic attacks, beginning with the congestion of the mucous membrane of the lungs, spreading into an inflammation accompanied by a croupous exudate, forming mucus plugs, causing spasms of the walls of the tubes and respiratory muscles.

In the uncomplicated asthma the result of toxemia from whatever cause irritating the mucous membrane of the respiratory tract of the nose and its cavities, the larynx, trachea and lungs, and the complex nervous reflexes of the trifacial and pneumogastric nerve should be treated by the internest by dietetic, hygienic and proper habits of living. On the other hand, asthma that is the sequela of some abnormality of the nose, say adenoids and tonsils—children disturbing equilibrium of air, water and food, especially at night when the child gets insufficient oxygen to complete the cycle of digestion, and the food ferments and decomposes, supplying the system with toxins, and the metabolic processes in the tissues are not completed for want of blood properly oxygenated, the toxin expressing itself in asthmatic seizures, plus the fact that the nose, a part of the respiratory tract, is not performing its function of purifying, warming and moistening the air to protect the lungs. These same results are found in adults that have obstructed nasal breathing, associated with pressure on the sensitive mucous membrane, supplied by the fifth nerve, which is the source of headaches, pain and neuralgia. These nervous phenomena, plus the want of the proper oxygenation of the blood, are the primary cause of a deranged alimentary tract, which furnished the toxins that are absorbed into the circulation setting up an asthmatic attack.

The upper respiratory tract, the nose and its accessories in use blocked from pathological causes, present a chain of conditions to be considered: First, the nose is not performing its function; second, pressure is made on a inflamed membrane often associated with pain, neuralgia, etc.; third, in a chronic sinusitis we have a nidus of infection (toxins) plus the draining of the pus into the lungs and stomach at night, give an ideal condition to make an asthmatic person, from

toxins absorbed from the intestinal tract, the cause entirely in the nose. Such are the most of the cases I am about to report.

Case No. 1. 11-2-11. Male. Age 10.

History: Had asthma for five years; had to sit up in bed most of the time. Two years ago had adenoids removed; no relief.

Diagnosis: Hypertrophy of cut end of R. and L. middle turbinate, obstructing breathing wedged between septum and sinus; hypertrophy of posterior tips of R. L. inferior turbinate pressing against the septum.

Treatment: Removed the hypertrophied parts of all the turbinates; asthma cleared up and he could eat anything he wanted, sleep with perfect comfort, play in the mud and rain without fear of asthma. This is a clear case of adenoids that before removal developed nasal trouble; that prevented the nose from performing its respiratory function filtering and moistening the air; and at night oxygenation of the blood was imperfect, plus the pain and nervous phenomena of pressure on the fifth nerve, with the reflex effect on the lungs through the pneumogastric.

Case No. 2. 6-15-11. Dr. Age 30.

History: Asthma and hay fever every fall for fifteen years; nose condition similar to case No. 1.

Treatment: Same at the beginning of his hay fever time which made the attack shorter and not so severe. Has not had a return since of asthma or hay fever, except the one already on when the operation was done.

Case No. 3. 1-9-13. Male. Age 34.

History: Asthma four years. Polypi removed from nose two years ago; relieved.

Diagnosis: R. and L. maxillary sinusitis and ethmoiditis. The asthmatic attack would come on suddenly during the day and night. So severe were the attacks that he feared death if away from a physician. Eight m. of 1,000 adrenalin would give relief.

Treatment: Radical R. and L. ethmoidectomy and opened up maxillary sinuses. Patient improved as soon as work was completed. In three weeks gained twelve pounds; considered himself almost well. Was to return if not relieved. Have not had any further report.

Case No. 4. 1913. Male. Age 30.

History: Colds for two years. Asthma.

Diagnosis: Pansinusitis on both sides of frontal maxillaries, ethmoids and sphenoids, which required ethmoidectomy with middle turbinates and posterior; two-thirds of interior turbinates, converting nasal maxillary and ethmoid into one cavity. The extensive necrotic condition made it impossible to clean everything from the roof of the ethmoid without danger of perforation, which required more than one operation. All necrotic tissue could not be removed, although the patient now has very little asthma, health is better in every way, and looks like he would get complete relief if all pathological tissue from the nose was cleaned out.

Case No. 5. 3-13-14. Male. Age 36 years.

History: Asthma for several years, nasal catarrh, taking 25 grains codeine a day.

Diagnosis: R. and L. chronic ethmoiditis, large middle turbinate.

Treatment: R. and L. ethmoidectomy wth middle turbinate opened, maxil-

laries (two operations). Has quit his codeine. Last week he reported no asthma, no dope, feeling fine.

Case No. 6. Female. Age 35.

History: Catarrh and polypi. Asthma.

Diagnosis: R. and L. chronic ethmoiditis. April 4, 1913.

Treatment: L. S. partial ethmoidectomy with middle turbinate. Six months later reported practically well.

Case No. 7. Female. Age 33.

History: Headaches for years; asthma two years.

Diagnosis: R. S. large middle turbinate, ethmoiditis, 10-16-13.

Treatment: R. side ethmoidectomy with middle turbinate; L. side lower turbinate intumescent blocking; reduced with cautery. Four months later report enjoying good health, headaches and asthma practically gone. She needed a submucous resection to give more space on left side, which she continues to postpone, as she is feeling fine

Case No. 8. Female. Age 28.

History: Asthma for three years; had to sit up to sleep most of the time. Any exertion generally brought on an attack. Said she was in the way instead of a help.

Diagnosis: R. and L. chronic ethmoiditis; septum to left.

Treatment: 11-20-13. R. S. partial ethmoidectomy with middle turbinate; 12-31, L. S. ethmoidectomy with middle turbinate. 5-20-14, reported that asthma had returned, but not so severe as before the operation.

Treatment: Removed the rest of the ethmoid cells which were full of polypi. The asthma cleared up and she went home feeling fine. It is too soon to know the result, but believe the incomplete removal of ethmoid cells on the right side was responsible for the return of the asthma.

Case No. 9. Male. Age 53.

History: Nasal catarrh, asthma for six years.

Diagnosis: R. S. chronic ethmoiditis with polypi, septum obstructing left nostril. 11-8-13.

Treatment: R. S. ethmoidectomy. Report, four months later, complete relief; says will have a submucous resection done some time later.

Case No. 10. Female. Age 42.

History: Asthma for seven years of the most severe type; had to sit up in bed. Confined to bed for past six weeks. Several times her physician thought the end was near, as her lungs were a wave of mucus.

Diagnosis: R. and L. side chronic ethmoiditis with polypi, nasal breathing, asthma. 12-8-13.

Treatment: Owing to her weak and very nervous condition did a partial ethmoidectomy with middle turbinate. Slept much better that night. Continued to improve until 12-22-13. L. S. ethmoidectomy with middle turbinate. The result looked like a complete cure. The patient said she did everything she wanted to; ate everything she liked, just to see if she was actually cured. Returned in April and reported that she had a bad cold with little asthma. She now wants the job finished up. Has not returned, but reports she is doing any and everything she wants to.

During 1913, I examined eleven asthmatics. Ten of them had ethmoiditis, with or without sinus involvement. In nearly every case nasal catarrh preceded the asthma. Eight of the eleven were operated

on with gratifying results. Those that did not get complete relief did not have the work completed.

Asthma may be caused from nasal conditions: (1) From deflected septum, enlarged turbinate, obstructing nasal breathing. The pressure may cause headaches and neuralgia, making a nervous dyspeptic patient, which furnishes intestinal toxins, the cause of the asthma plus the reflex from pressure on the fifth nerve and its ganglion through the pneumogastric nerve to the muscles of the bronchi. (2) When the nose is blocked the air is breathed through the mouth, and is not filtered, warmed or moistened. (3) When diseased it is a nidus for infection of the whole respiratory tract. I am convinced that the percentage of my finding of the nose trouble is too high. The reason for this is that most of them come to me for nose treatment and not asthma.

Adams, of Glasgow, whose specialty is asthma, found 77 per cent with some nasal trouble. Many of these were of trivial nature. Other writers find approximately 25 per cent. My opinion is that more than 50 per cent of asthmatics have the cause or an attributing cause in the upper respiratory tract (the nose). Then our deductions must be that every asthmatic should have his nose examined (and if need be the accessory sinuses) by a rhynologist before the examination is considered complete, that the prognosis may be changed from one of despair to one of hope. That the nasal operation should not be one to cure asthma, but to put the nose in as near a normal condition as possible in the abnormal anatomical nose, and to remove the diseased tissue in the pathological nose. To operate on a normal nose because a person has asthma would be the greatest of folly. I make it a rule to treat the nose as a non-asthmatic; then I am sure to not be radical just because the patient is an asthmatic.

AMEBIC ABSCESS OF THE LIVER.

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Amebic abscess of the liver is by no means uncommon in North Carolina, but we rarely hear the subject discussed in this State. In round numbers, about 20 per cent of all cases of amebic dysentery, the world over, present this complication. Johnson's compilation[1] of 4,916 cases of undifferentiated dysentery from India showed 1,028 cases of hepatic abscess, or 20.9 per cent. In 3,316 autopsies gathered from India, Europe, and the United States before the year 1883, there were 611 cases of liver abscess, or 18.4 per cent. In 346 autopsies on cases differentiated as amebic dysentery in Egypt, India, Manila, and the Southern States there were 75 cases of liver abscess, or 21.76 per cent.

In the Johns Hopkins Hospital series of cases (the only considerable data available at present from the United States) 22.7 per cent were complicated by abscess. In view of these figures showing the incidence of liver abscess in other localities, it seems probable that routine autopsies in this State would show the same or nearly the same incidence.

In my own series of 94 cases, liver abscess has been diagnosticated 10 times, giving a percentage which forces me to conclude that I overlook this complication as often as I find it.

The opening and draining of amebic abscesses has at all times and in all countries been productive of a fearfully high mortality rate. This situation was somewhat improved by Rogers' recommendation to aspirate and inject quinine[2]; later the administration of ipecac as a routine in all such operative cases proved to be a considerable advance in the treatment of abscess. Since the introduction of emetine the mortality of hepatic abscess has been still farther reduced by injecting the alkaloid both subcutaneously and into the cavity as soon as the pus has been aspirated. For instance, Thurston[3], in a recent report of 101 liver abscesses, lost only 11 out of 48 cases treated by aspiration alone with the simultaneous use of ipecac or emetine, a mortality rate of 23 per cent, whereas in the remaining 53 cases treated by other methods the mortality rate was very much higher than this.

More important, however, than either the recognition or the proper treatment of liver abscess, is its prevention by the routine use of ipecac or emetine in amebic dysentery. Pilgrim[4] has shown that in the first three years after the introduction of the routine use of ipecac, in one of the Calcutta hospitals, the admission rate for liver abscess fell off about 70 per cent; in the same hospital, where more than 200 cases of amebic dysentery are treated yearly, during the same period of three years no case was followed by liver abscess. Rogers[5] has likewise shown that since the publication of his paper on ipecac in 1907, the admission rate for liver abscess in the British Army in India has dropped from 2.7 per 1,000 in 1907, to 1 per 1,000 in 1910, or from 165 to 75 cases.

In North Carolina, then, in the first place, we should learn to recognize liver abscess with greater accuracy; in the second place, aspiration alone, with the simultaneous administration of ipecac or emetine seems to be considered the best treatment; and finally it seems to be entirely possible to prevent liver abscess by the routine use of ipecac or emetine in the treatment of amebic dysentery.

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THE CONSERVATION OF TISSUE IN INJURY OF THE EXTREMITIES.

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The frequency of wounds of the extremities make their care and treatment of peculiar interest to those of us engaged in the general practice of medicine and surgery. The upper extremity is particularly exposed to traumatism, and upon the successful management of these cases depends the rapidity of immediate repair, and frequently the extent of permanent disability of the part.

The modern surgeon needs no elaborate rules for the performance of operations. He must be guided by a thorough knowledge of anatomy, and of the principles of operative surgery, supplemented by common sense and creative ingenuity. Above everything else, he must be clean.

When we have an accident case before us we must decide what results we wish to accomplish, and proceed in the simplest and most direct manner. Our first responsibility is that of saving the patient's life, and the next is that of restoring as far as possible the usefulness of the injured parts.

The greatest factor in the surgeon's favor in the treatment of wounds of the extremities, and particularly of the hand, is the free blood supply. The integrity of the blood supply is of first importance in determining the question as to what tissue can be saved, and what can not. We should be thoroughly conscientious, and keenly alive to the responsibility of restoring and saving even the smallest part that can, in any case, with safety be preserved and made useful.

The surgeon is no longer deterred by the fears of gangrene and septicemia, which constantly menaced his predecessors, and filled our text-books with complicated descriptions of brilliant methods of amputations. Simple cleanliness, with the rigid observance of the principles of asepsis, have endowed us with the means of preventing these dreaded complications, and of giving to the unfortunate injured the chance at least of saving and restoring an injured limb, which was formerly sacrificed. It matters not if the muscles are torn through;

they can be sewed together, tendons united, and nerves either grafted or united. Extensive destruction of the skin can later be restored by grafting. So practically everything that is required for the conservation of an injured limb is a requisite blood supply. Blood vesseds frequently remain intact when everything else is apparently destroyed. Amputation should not be done because the bones are fractured or comminuted. Frequently fractures with open wounds and badly comminuted bones will unite under favorable conditions.

The most conservative of us are frequently in doubt as to the possibility of saving injured limbs. This doubt should, however, be on account of uncertainty regarding the blood supply. Insufficient circulation gives anxiety on account of the possibility of traumatic gangrene. It is under circumstances of this nature that antiseptics play their most important role. We can thoroughly cleanse the wound with strong germicides, cover with sterile dressings, keep it constantly bathed in warm saline solution, and await developments. We should not amputate until the local circulation has ceased.

These injuries usually come to us badly infected with dirt and grease, and various materials applied to control hemorrhage. The rapidity of repair and the permanent usefulness of the parts depend upon the judgment exercised in repairing the injury, and the care and skill with which we have observed the principles of asepsis. In dressing these wounds we should remove any badly crushed and hanging fragments of tissue, and where limbs have been crushed off, remove sufficient bone to secure adequate covering for the bone, and close the wound with, or without drainage, depending upon its size. We should, however, never amputate where the integrity of the blood supply is sufficient to maintain the vitality of the injured limb.

The dressings may be either wet or dry. Where we are confident of having a clean wound a dry dressing is to be preferred, consisting of a pad of sterile gauze of sufficient size and thickness, held in position by either adhesive strips or bandage. In case of infected, suppurating, and granulating wounds we find the moist dressing far more satisfactory and efficacious. A pad of sterile gauze covers the wound, and it is kept constantly wet by applying every hour or two a small quantity of some antiseptic solution, as a 2 per cent solution of boric acid, or bichloride of mercury 1-5,000, or any other of the various combinations to suit the surgeon's fancy and individual opinion. It is far better to wet the dressings more frequently than to cover the parts with rubber tissue or oil silk to prevent evaporation, which macerates the skin unnecessarily.

Let us remember that the first dressing is the most important dress-

ing given these injuries. And, above everything else, let us be clean in our technique, and conscientious in the amount of tissue we sacrifice, as these are the determining factors in the rapidity of repair and extent of permanent disability.

KELOID FORMATION IN THE NEGRO.

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Those of us in the Southern States devoting our time to surgery and anatomy, and of a necessity having the negro among our clientele, are in a position to observe many physical and functional differences between the black and the white races. One of the most interesting conditions to which the negro shows an almost exclusive susceptibility is the development of keloids.

It is a common and almost daily observation to see among our negroes those bearing scars on their necks and chests marked by an excessive tissue formation. Some of these growths are quite large, and others very fantastic, taking on the most bizarre forms. A great many give the history of a former "scrofulo" (cervical tuberculous adenitis) where the glands have either broken down or have been excised. The growths are most common in wounds healing by granulation, but some follow a minimum injury or irritation like the piercing of the ear-lobes. The neck and chest seem to be sites of predilection.

Nevins Hyde claims to have proved the presence of the tubercle bacillus in certain keloids, and Gougerot has gathered an ensemble of clinical histological, bacteriological and experimental data in favor of the tuberculous origin of keloids. Other authors like Landouzy, Menard and Lamy also insist upon the relation between tuberculosis and keloid formation. It may be of significance and bearing upon this relation that the negro is so especially susceptible to both tuberculosis and keloid formation and that keloids frequently develop upon old tuberculous lesions bordering the skin. The sites of predilection, the neck and chest, might also point to a tuberculous origin in that tuberculous infections might spread from these locations through the lymphatics, following the distribution of these vessels and settling at a point of least resistance.

There are, however, many facts to disprove the tuberculous and infectious origin of keloids and place them rather under the head of tumor growths. Hallopeau speaks vaguely of the lesion, that it is "only a manifestation of a morbid tendency peculiar to the subject." He means by this statement simply that he does not know the provoking cause of keloids any more than he knows the cause of other tumor

growths, but that the keloids, like these growths, do not resemble any of the results of bacterial action. A keloid may develop along the whole length of a scar or only at the point of a single stitch hole, respecting many other stitch holes along the line of the incision. It must be admitted, then, that this alteration of the cicatrix does not depend solely upon a question of a fertile field for bacterial growth. In one case a large keloid followed a needle hole made in each ear, and there is also a keloid over the right buttock of the same patient over a burn. This case would suggest that the tendency to keloid were not local, but a general disposition. In another case there was keloid formation in old syphilitic scars on the chest, and in a scar under the lower jaw, the result of a cut. This case also suggests the tendency to keloid formation on the part of the negro, irrespective of the character of the local irritant. Keloids spring up apparently without local irritation just as other tumors do. It is always possible, however, that the growth arises in response to an irritation less than a needle prick, the causative factor in the case first mentioned. Out of twenty keloids gathered by Bloodgood among 200 benign connective tissue tumors, six of the keloids were spontaneous, the so-called "true keloids," and fourteen occurred in scars, the so-called "cicatricial keloids."

Histologically the keloid is a fibroma of the skin arising in the connective tissue of the derma. The epidermis is adherent over the tumor and is very thin. Occasionally in spontaneous keloids, more often in cicatricial keloids and especially when they are recurrent, areas of spindle cells resembling a sarcoma are found. The growth is prone to recur locally after the removal but does not metastasize. This is due to the structure, the close cohesion of cells and low vascularity, the structure of a fibroma. Cicatricial keloids rarely disappear spontaneously after several months. In most keloids no bacteria nor parasites are found, and those objects taken for parasites are doubtless due to faulty fixing and staining.

Owing to the analogy of experience with so many diseases which have proven to be of bacterial origin, as with the tubercle in tuberculosis and the gumma in syphilis, the cause of keloids has often been attributed to micro-organisms and parasites. Since the keloid is histologically a fibroma and histogenetic studies have established that the keloid does not grow through changing the surrounding cells into tumor cells, but grows as a mass of foreign cells from an original focus, and does not (as for example, the tubercle and the gumma) involve the surroundings directly in the process, they differ in this from all known effects of bacteria. Extra-cellular parasites could only be attributed the power of offering the impetus to change of normal cells into the

cells of the tumor and leave the further growth, in consequence of the biological changes, to continue its course. The keloid would be only in its beginning a parasitic disease. Intracellular parasites would have to possess this same peculiarity of behavior, which has never yet been seen in the case of any known parasite. It could only be an absolutely specific adaption of the parasite to the tumor, which is so perfect that it immediately becomes absorbed by the cells from which the growth springs; and the idea that there is a particular causative bacterium, simply to agree with the law of specificity of bacterial action, is not at all substantial. For how can one imagine a parasite which may affect certain cells, prompt them to continuous growth and immediately lose the power to affect other cells?

Even in granting that the keloid, like other fibromata, is a neoplasm due to definite defects of normal tissue cells, the cause is still obscure. We know only that the etiological factors must so act as to produce these changes in the cells, and all theories of etiology which do not consider the histogenetic and biological facts are worthless. There are, however, many possibilities which remain and can be divided into two large groups, according as one may attribute the origin to congenital malformation or to outward irritation.

Hereditary dispositions, with the elimination of every other acquired cause, are very difficult to prove. It is accepted, however, that many tumors arise from congenital malformations and from misplaced germinal cells; others show no such indication. On the other hand, we observe a striking relation between an outward injury and the formation of tumors. There are thousands of cases already recorded where tumors follow traumatic, thermic and radial injury. Even normal cells are prompted to proliferation and alteration by such injuries, but there is a return to normal or to a state of equilibrium of growth. Whatever checking force or inhibitory substance there is to control the growth and shaping of the body tissues again exerts its influence. It would seem that, in the case of normal cells, there is first a paralysis and then a regeneration of some inhibitory substance, while, in case of tumor cells, the paralysis is followed by a more or less feeble restoration of this inhibitory substance. It remains a vague speculation as to what this inhibitory influence is; whether it be a substance in the blood serum, the nervous system through so-called trophic nerves or locally, the cohesion of the cells.

Can irritation so act as to produce a paralysis of an inhibition of growth? We know that normal cells are checked in their over-growth at a certain point by some inhibitory influence. When, on the other hand, cancer cells are irritated, the capability of restitution is seen to

be entirely wanting, or very feeble. This fact is based on many clinical observations and is shown brilliantly in a few of the researches carried out by Ehrlich. According to him through the effect of moderate heat and cold, slowly growing cancer cells in mice could be brought to a rapid proliferation without check. Michaelis was able to produce, through warming the cells to 45° C., a lasting increase in volume of cancers in mice. Along this same line the work of Clowes and Baeslack showed that cancer cells, through warming to 37° to 40° C, could be made to take on a lasting continuous accelerated growth; but this action was shown to take effect only on the slow-growing tumors, which are less inclined to degenerate. As with normal tissue, every irritation producing overgrowth depends upon the removal of some inhibitory substance. The above experiments agree with the law. The difference with cancer cells is that the growth continues its gained activity and that a selective action of stimuli, as to quality and time of application, is not necessary.

The difference, then, between normal cells and tumor cells rests upon three factors. First: The power of checking a growth once begun and restoration to an equilibrium of growth, as occurs with normal cells, does not prevail. This difference in the cells themselves is certainly necessary for the development of a tumor. The condition is produced by some irritant paralyzing the growth checking influence. If the power of regeneration of this inhibitory force preponderates over its destruction by the irritant, the growth must sooner or later terminate, because the inhibitory force is restored to normal. In such a case, not a malignant but a more or less malignant tumor arises. Second: If even as much inhibitory substance regenerates as is destroyed, then inhibition of growth remains unchanged and a normal development takes place; a lasting continuous growth (a cancer) takes place as soon as the inhibitory action is removed by some irritant paralyzing the growth-checking influence. Third: If the capability of restitution has sunk so far that the irritation destroys more of the inhibitory substance than is formed, then a rapidity of growth takes place, more and more rapid, until an indefinite maximum is reached; that is, a cancer is formed.

These factors just cited would serve to explain the development and growth of keloids, as well as other tumors. In the first case mentioned above, it is seen that a keloid may arise following an irritation of the slightest intensity. Cancer cells may be made to grow rapidly following the slightest irritation. In the case of the keloid there is evidence to show both a single and multiple response, through growth, in various parts of the body of the same individual, and to irritants of different

character; in the second case is seen a keloid arising from an old cut under the jaw, and another from an old syphilitic scar over the chest. The irritant, of whatever character, acts by overpowering the inhibitory substance and the cells are allowed to grow. The fact that a keloid appears spontaneously may mean only that the irritant has been mild and has gone unnoticed. The fact that some keloids disappear spontaneously may mean, on the other hand that the inhibitory substance has regenerated.

Why are keloids so much more frequent in the negro than in the white man? The negro is much more susceptible to all connective tissue tumors than the white man, about two to one. The negro at birth shows many gross congenital malformations, and on the dissecting table many anomalies of blood vessel and nerve formations confuse the student as he follows his text-book guide. These perverted structural conditions point to an instability in the equilibrium of growth. There must be some disturbance of an inhibitory influence which holds the growth of the cells in check and prevents their growth at random. If the abnormal growth of cells is due to an injury of an inhibitory substance, this substance must first be injured before the cells can grow. This inhibitory substance is then more sensitive than the cells themselves. If we possess evidence of a much greater preponderance of abnormalities of growth and tumor formation in the negro than in the white man, we may know that this inhibitory substance is weaker and more unstable than in the white man. Therefore irritation which might pass without a demonstrable effect in the white man might so injure this inhibitory substance in the negro as to allow an overgrowth of the dermal connective tissue cells and the formation of a fibroma, or a keloid.

SOME PHASES OF METABOLISM WITH SPECIAL REFERENCE TO CARBOHYDRATES.

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Such a subject cannot be treated in detail in the time allotted at this meeting. My object therefore in presenting such a paper is that I may awaken an increased interest among the profession in the much neglected sciences, physiology and bio-chemistry.

Paraphrasing an Eastern fable, I might say that in the family of medical subjects, physiology, along with bio-chemistry, is the household drudge, who, in obscurity, hides unrecognized perfections. To them has been committed much of the work; by their skill, intelligence and

devotion have many of the conveniences and gratifications in the medical world been attained, and while ceaselessly they have been accepted in ministering to the rest, they have kept in the background that their haughty sisters might flaunt their fripperies in the eyes of the world. We are fast beginning to realize the position, the true position, of physiology and bio-chemistry. When their true position is awarded them, they will be found to reign supreme in beauty and worth.

Certainly the only foundation for rational therapeutics is a correct understanding of the human body. Until we know more of the physiology of nutrition, quacks will thrive and food faddists abound. Ignorance of physiology tends to make a medical man as credulous as his patients and almost as easily beguiled by the flaming advertisements of the druggists.

Pathological physiology interests the physiologists only as it throws light on the normal function of the body. The bio-chemist, on the other hand, is more ready to interest himself in pathologic phenomena, not only because it assists in the solution of physiologic problems but because the study of such phenomena has appeared to be worthy of separate pursuit. We may still, with modesty, call to the clinician's attention that the science of disturbed function has become one of the important underlying sciences of medical practice and that there are a large group of diseases to which no etiologic line of treatment is at present applicable. Also, many underlying anatomic changes are either unknown or inaccessible to treatment. Yet by correcting as far as possible the essential functional disturbances, which is the immediate cause of the symptom, brilliant results have been obtained. In a large measure these results have been the reward of the labors of the physiologist and bio-chemist. For example, the dietetic treatment of diabetes, the dietetic and acid treatment of gastric achlorhydia, the use of digitalis in certain forms of cardiac insufficiency, the restriction of chlorides in special types of edema and the many valuable chemical findings in urology are really brilliant examples of the effective work done by the physiologist and bio-chemist. It is also necessary in answering many of the perplexing questions which arise in the clinic to lean heavily on this branch of medical knowledge. For, the physiologist and biochemist are especially adapted to make carefully planned observations on the patient and exact experiments on animals.

The body is a great chemical laboratory which deals constantly with a variety of chemical compounds, and their activities and results are of such a complex nature as to baffle the most refined methods of chemistry employed in their detection. All of the proximate principles, proteins, carbohydrates and fats, undergo many changes before they be-

come a part of or are intimately associated with the tissues of the body. They are ultimately subjected to anabolic and catabolic changes and are eliminated from the body in the form of relatively simple compounds, as water, carbon dioxide, urea, uric acid and so forth. This long physiologic metamorphosis, with its most interesting and yet perplexing intermediate products, is known only in part, to say nothing of the many pathologic phases of metabolism. At any rate it is known that the process of metabolism may lead to the production not only of that which is of use to the body, but that it can also furnish injurious and toxic bodies. So, too, any check to the normal processes of elimination may lead to an accumulation in the system of normal waste product, with a subsequent intoxication.

In selecting the carbohydrate group for this study in metabolism I do so because it constitutes the greater proportion of our dietary. Ranke gives the approximate composition of the diet of a man of average weight, and doing a moderate amount of muscular work: protein 100 grms., fat 100 grms., and carbohydrates 240 grms., and if much muscle work is involved, the carbohydrate content of the proximate principles may reach 400 to 700 grms.

Another reason for the study of the carbohydrates is that in such a study it shows how all three classes of the proximate principles coöperate in maintaining all of those chemical processes which lie at the root of the existence and activities of life itself. For instance, we now know how much in error were the ideas of those who clamied that protein alone was necessary for life and that protoplasm was simply living protein. Protoplasm, the great basis of life, must now be regarded as a large complex, in which proteins, fats, carbohydrates, inorganic salts and water all play their part and of which each is a necessary constituent. Proteins, while they are necessary to furnish protein to the tissue, have their individual characteristics in their amino-acids. The food must contain just those amino-acids which are necessary for the building up of protein found in each separate tissue. Besides, certain groups of the protein molecule appear to serve as mother substances of hormones and of other chemical compounds which play a dynamic rather than a static part in the phenomenon of life. That is to say, they supply conditions for activity rather than furnish material for the production of energy. The simplest example of such a function has long been recognized in an empirical way by the French chef, who salutes you with a delicious bouillion to call forth your "appetite juice" for the viands to follow.

Carbohydrates not only act as sources of energy but they are necessary in the building up of protein in the protoplasmic complex, and with-

out them protoplasm cannot utilize the fats which it contains or with which it is supplied in its food. Carbohydrates by themselves are not available as food but require some connecting link, which may be protein in character, to enable their association with the active part of the protoplasm and their utilization by oxidation. At the same time, the study of carbohydrate metabolism shows that there is a possibility that these proximate principles may be converted one to the other, that is to say sugar may be formed from proteins, possibly fats, and fats may be formed from carbohydrates.

I shall purposely omit, for lack of time, an account of the chemistry of the carbohydrates or the chemical processes which they undergo during digestion. Such information may be gained from any text-book on physiologic chemistry. It is enough to say here that the carbohydrates are supplied chiefly in the form of starches (polysaccharides) and sugars in the form of cane sugar, and lactose (diasaccharides). And it is during the process of digestion that the carbohydrates are converted by enzymic action into the simple monosaccharides, dextrose, levulose and galactose. These sugars are now absorbed by the cells covering the intestinal villi and carried in the portal vein to the liver. Some of these simple sugars are allowed to pass on as they are immediately required by the tissues. The greater portion, however, is stored in the liver as glycogen. A study of their metabolism starts at this point, that is when they enter the circulation as monosaccharides.

Some of the interesting problems of carbohydrates metabolism is the part that sugar plays in the production of energy, in the nutrition of the tissues of the body and in what form it is excreted from the system.

In order to form any correct conclusion it is necessary to know the changes which carbohydrate food undergo in digestion and the significance of carbohydrate cleavage, that is the splitting up of the more complex carbohydrates, and also a knowledge of their absorption. It is also necessary to have a knowledge of the content of sugar contained in the portal blood. While this determination is a matter of great technical difficulty, yet elaborate series of data are already available not only in the portal blood but in the systemic circulation. Already the mention of hyperglycemia begins to sound almost as familiar as the every day reports of the clinical laboratory with respect to urinary findings. The percentage of sugar in the portal blood varies from .05 to .4 per cent, the lower figure being reached in advanced starvation, and the higher during a meal rich in carbohydrates. The sugar content of the blood obtained from the general circulation is fairly constant. We may say in round numbers, .1 per cent may be taken as a standard of the individual in health. It is interesting to note here that in the

typical form of diabetes it is accompanied by hyperglycemia. Sometimes this occurrence takes place before the other symptom, namely, glycosuria. Of course in this pathologic condition a large range in percentage of blood sugar is not uncommon. Data given by Rolly and Opermann gives some idea of this range from .4 per cent even as high as 1 per cent. Even the cerebro-spinal fluid may be rich in sugar under these conditions, as well as the aqueous humor.

We cannot account for the absorbed sugar as existing in the blood, allowing 500 c.c. to the full grown man, only about 10 grms. being present. Nor can it be accounted for in a free state in the tissues, that is in the muscles, for if they be examined in the fresh state only minute traces of sugar will be found. Hence, there must be some other place for the storage of sugar in the animal body. There must be a place where the percentage of sugar in the systemic blood is regulated. This must hold because if the sugar per cent is raised in the slightest degree above the fixed upper limit, say .2 per cent, sugar is immediately secreted in the urine. The conclusion must necessarily be arrived at that there must be organs to store up sugar and at the same time to regulate the output. This brings us to that interesting study begun some fifty years ago by Claude Bernard.

Claude Bernard, that great French man, of whom his admirers loved to say, "He is not a physiologist, merely; he is physiology itself," discovered the glycogenetic function of the liver along with his researches on the ductless glands. The liver, of course, is not a ductless organ, but he noted that the amount of its biliary output seemed utterly disproportionate to its enormous size, particularly when we consider that in the case of the human being the liver contains, normally, about one-fifth of all the blood in the entire body. Bernard discovered that the blood undergoes a change of composition in passing through the liver, and that the liver cells have the power to convert the carbohydrates that come to the liver in the form of monosaccharides, into a substance whose chemical structure resembles that of starch. He isolated this body and proved it to be a polysaccharide which would yield dextrose by hydrolysis and to this substance he gave the name of glycogen. In this fifty-odd years that have elapsed, numerous facts have come to light, for instance, the post mortem resolution of glycogen into sugar due to enzymic action, and also the reversibility of the actions of enzymes as demonstrated by Croft Hill.

While the amount of glycogen contained in the liver varies with the amount and nature of food taken, the maximum amount has been found to be about ten per cent of the total liver weight. Hence, in the case of man, with a liver 1500 grams the greatest quantity of glycogen

would be 150 grms. So there must be some other place in the organism besides the liver where this excess of carbohydrate may be stored. The muscles contain about 1 per cent resulting in the storage of about 150 grms. This only accounts for 300 grms. while our dietary often contains more carbohydrates than this. So it is concluded that a considerable amount of carbohydrates are converted into or at least incorporated with fat or protein. The many experiments carried out in animal feeding prove this fact.

This paper will not permit me to go into detail in giving the direct and indirect method in the experimental studies to ascertain what food stuffs lead to glycogen formation. The results of such investigations are by the direct method, whose results are controlled by the indirect, that glycogen is formed from the fermentable sugars, detrose, levulose, and galactose. The polysaccharides, starch and dextrine, are also glycogen formers. So it is seen that all carbohydrates, which upon digestion yield dextrose or levulose, form glycogen. Since the time of Bernard, it has been claimed that proteins also give rise to glycogen in the liver. Some observers deny this claim while others affirm it. In order to obtain any satisfactory conclusion in the matter the indirect method of determining glycogen value has thrown much light on the subject. The indirect method, by the way, is to so alter the metabolic machinery by certain operations as to render the animal incapable of utilizing sugar. So if sugar be introduced into the body or formed within the body, it will be excreted in the urine. Now should the administration of any given food material cause an increase in the amount of glucose excreted, that material must be regarded as a source of sugar and therefore a source of glycogen. McLeod sums up the results of such investigation by saying that glycogen formation does probably occur by feeding with proteids which contain a carbohydrate group. There is no unequivocal evidence so far that this is the case for such proteids as casein, which contains no such group. The entire question urgently requires reinvestigation, since by the indirect method evidence undoubtedly points to sugar formation from all proteids.

As to glycogen being formed from fats, experiments carried out fail to show that glycogen originates from the fatty acid components; proof is not lacking, however, that glycerine is not a glycogen former.

The fate of glycogen which is stored up in the liver is of much interest, and two theories as to what becomes of the glycogen are advanced. Bernard's theory is that it is a reserve carbohydrate, and that whenever the amount of sugar in the systemic blood falls below its normal percentage, liver glycogen is reconverted into sugar, which by way of the hepatic veins empties its contents into the general systemic blood,

so that the average sugar per cent is maintained. The evidence stands in favor of this theory. Accepting this theory regarding the fate of glycogen, we are at once brought into the realm of catabolic activities. That is, in what manner is the sugar disposed of or destroyed? Examining the excreta, sugar is not found under normal circumstances either in the urine, feces or sweat. Hence, it must be concluded that while sugar is used up, it is decomposed and eliminated from the organism in some other form than sugar. In examining the respiratory products, it is found that they contain carbon dioxide and water; so, too, is water found in the urine and sweat. Carbohydrates contain only carbon, hydrogen and oxygen. So it would be a justifiable assumption that they are oxidized and excreted as carbon dioxide and water. Moreover, the respiratory quotient substantiates these facts, especially after a meal of carbohydrates alone. This appears to be a simple fact of chemical metabolism and while carbon dioxide and water are the final products of oxidation, just what intermediate bodies are formed before the attainment of this final condition is at the present time unsolved. Many theories are advanced claiming that the lactic acid is the first product which is finally converted into carbon dioxide and water. Another theory, which is interesting and certainly has some experimental foundation, assumes that sugar is first broken up into carbon dioxide and ethyl alcohol. The alcohol is then assumed to be oxidized to carbon dioxide and water. This experimental justification is furnished by Stoklas. He claims to have demonstrated that a very large number of the different organs and tissues of the body possess enzymes precipitated by the alcohol ether treatment, which are capable of effecting this alcoholic fermentation.

Anyway, it is evident that there are two processes called into play in the breakdown of the carbohydrate molecule, namely, a process of disruption and a process of oxidation of the disrupted groups. The point here, of intense interest to the clinician, is that the failure of either one of these processes might be the immediate cause of abnormal metabolism of dextrose in the diabetic condition. Which one of these processes is at fault is hard to say, though deficient oxidation does not appear the immediate cause of diabetes. It is more probable that it is the lack of disruption of the dextrose molecule. Certainly it is the primary cause of nonutilization of sugar by the organism. It is also evident that the disrupted process begins before the oxidating process. That is to say, oxidation is impossible until the large sugar molecule has been disrupted into smaller groups. In the severer forms of diabetes, we know that the oxidative function is much depressed, for on account of this depression there appears in the urine incompletely

oxidized bodies, such as beta, oxy-butyric acid, aceto-acitic acid and acetone. When we think of diabetes as nullifying the power of utilizing dextrose in the organism, we also must see that in order for the organism to obtain the necessary energy for life, it is compelled to utilize now the two remaining proximate principles, fat and protein. Sufficient quantities of these two principles are not always absorbed from the intestines, so that fat and protein in the tissues are used up with resulting emaciation and death. In such cases this is really an acute starvation. In diabetes, however, death may result from that well-recognized clinical symptom known as diabetic coma. This coma is associated with those incompletely oxidized bodies just mentioned, beta-oxy-butyric acid, aceto-acitic acid and acetone. The presence of these would indicate that the coma is due to an excess of these bodies; their source is somewhat obscured. It is not derived from proteins nor can it be derived from carbohydrates alone, because it is produced in abundance on a carbohydrate free diet and at a stage in diabetes when practically all the tissue carbohydrates are used up. Hence, we must look for the source of these bodies either from the decomposition of fat or a synthetic process where indirectly they may come from any of the proximate principles. Their origin from fats is a fairly simple chemical process. So, in ordinary circumstances, fat is oxidized to carbon dioxide and water, but as a result of defective oxidation, we have the intermediate acids and acetone produced, and eliminated in the urine.

More light, in all probality, has been thrown on the whole question of sugar metabolism and glycogen formation and the relation of sugar to other materials in the body by a study of Experimental Glycosuria. It would be interesting to discuss in this connection diabetic punctures; the results of the injection of salts; the production of glycosuria by phloridzin injection; diabetes produces by the extirpation of the entire pancreas, but time will not permit detailing these interesting experiments. Results from these experiments show that the glycogen storing function of the liver is under nervous control, a fact proved by diabetic puncture. Also, if the liver cells are in a state of impaired vitality, a mild form of glycosuria may ensue. It is also easy to understand that a transient alimentary glycosuria may occur when too much sugar comes to the liver to be dealt with adequately by that organ. Dextrose is carried to the muscles and absorbed to the tissue protein and it is possible that the internal secretion of the pancreas is an all-important factor in stimulating the tissues to take up dextrose. For, by experiment, when the entire pancreas is extirpated an intense glycosuria follows, lasting until the death of the animal. Here it is evident that the protein and fat supply of the organism, besides its con-

tained carbohydrates, must be called upon to furnish the excreted sugar. The injection of phloridzin produces glycosuria but differs from all other types of glycosuria as it is unaccompanied by hyperglycemia. It is due to a disturbance of the kidney, itself, most probably in the cubical cells lining the convoluted tubules. Indeed, probably more accurate knowledge concerning dextrose metabolism in the animal body has been gained by investigation on this form of experimental glycosuria than by those made on any other, whether experimental or clinical. Hence, it is looked upon as a standard method in the study of the metabolism of carbohydrates.

To sum up the observation on animals it is found that glycosuria resulting from hyperglycemia may be produced by the following methods:

First. Overfeeding or the injection of dextrose.

Second. Diabetic puncture.

Third. Injection of strong solutions of sodium chloride and complete removal of the pancreas.

Glycosuria without hyperglycemia may be produced by the injection of phloridzin.

THE TREATMENT OF AMEBIC DYSENTERY.

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The subject of the emetine treatment of amebic dysentery has been so recently reviewed in the American literature by both Vedder[1] and the speaker,[2] that anything but a brief summary would be superfluous at this time.

It has been shown that emetine is amebacidal in high dilutions and that it relieves the clinical symptoms of dysentery in a few days. The prompt disappearance of blood from the stools is probably due in part to the stimulating effect of emetine in unstriated muscle, causing constriction of the arterioles.

The dose of emetine ranges from ½ to 2.5 grains, given hypodermically twice daily, or several times a week. This treatment should be repeated several times at intervals of about two weeks in order to destroy any active amebæ that have developed from cysts, as emetine has no effect on cysts.

The majority of the cases treated with emetine relapse during the first year after treatment, but these relapses seem to be as easy to control as first attacks. Inasmuch as amebic infection tends to establish a tolerance for amebæ, and finally toward recovery in the absence of serious complications, emetine shortens the period of infection by years

when it does not eradicate the ameba at once. Some cases are permanently cured by one course of treatment.

Up to the present time emetine is by far the easiest, safest, and most effective drug for the treatment of this remarkably chronic disease.

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PREVENTIVE APPENDECTOMY.

H. S. Lott, M.D., Winston-Salem, N. C.

Surgery comes to us in eras. The old peri-typh of Gross, with the causative focus unrecognized, marked the era of innocent ignorance as to real and fatal pathology. In this era, made bold by a clinical picture which established the presence of pus, to "stab and run" was the height of surgical attainment. Becoming interested in these distressing fatalities, the anatomists located the primary focus in the vermiform appendix, with the resultant masterful grouping of symptoms, styled "fulminating appendicitis," so graphically pictured by Hunter McGuire, that a diagnosis could really be made with "the toe," and in which prompt surgery and thorough drainage saved the patient.

Just here, in the evolution of appendiceal surgery, matters became chaotic—that awful "pendulum" swinging between the man who had the courage to remove the appendix, and cleanse and drain the abdominal cavity, and the man who had not. Both operators are working today, and will be always, and the patient is the shuttle-cock between the two.

However, from out this chaos, with its tedious convalescence, its distorting sequelæ, and distressing fatalities, an appeal went worth to the "man in the field" for early recognition and prompt removal of the focus, with a sympathetic response which is the essential factor in establishing preventive surgery.

Within the next era, and early among the findings of intra-abdominal explorations, made possible by the perfect toilet, and dainty technique of Listerism, were Lane's kink, and Jackson's membrane, with also a recognition of their danger, from either distortion to its lumen, or interference with the normal peristalsis of the gut; while close within their wake, and of greater import, because of its wider scope, and broader field of adaptation, comes the teaching of Robt. T. Morris, telling us of

"adventitious tissues within the abdomen," and "cobwebs in the attic," of either intrinsic origin, and arising from auto-infection, or of extrinsic origin, and dating from embryonic life, wherein faulty involution and failure in resorption of formative membrane start the constricting and immobilizing cycle.

Such tissue bands within the abdomen offer danger possibilities from pathologic foci, of two kinds; first, by mechanical constriction, the circulation is obstructed, at a cost to both the nutrition and the vitality of the part. With age, and a loss, perhaps, of a portion of the fluid content of these bands, the constriction from fibrous tissue becomes *not less,* but greater in degree. Second, and of equal danger, because of its disturbances of function, normal peristalsis is prevented by welding of the bowel to the floor and the walls of the cavity.

Thus grouped, these mechanical causes both favor and invite chains of symptoms occurring in cycles, marked by flatulence, constipation and pain, and always cloaked by the obscurity attending disturbances of digestion.

At the Providence meeting last September of the American Association of Obstetricians and Gynecologysts, the author presented the subject of "Appendicitis in Young Women," with the hope of emphasizing the importance and the obscurity of "right-sided" pain in these patients. Two cases were cited in which, although a classic group of symptoms had justified operation, the appendices were apparently normal, and adhesive bands, if existing, were not discovered. Futhermore, the patients were not relieved, and continued to have pain, in recurrent attacks, and accompanied by obstinate constipation (see *American Journal of Obstetrics and Diseases of Women and Children,* Vol. LXVIII, No. 5, 1913). However, subsequent history of these cases indicates the existence of constricting, and especially of welding bands, that further exploration would have revealed them, and that their freeing would have given more gratifying results.

During the past year, and since making this report, several cases have come to me with a diagnosis of "appendicitis." The diagnosis in each case was made by a competent man; and accepting it as true, the patient subjected to operation. First to impress me, upon entering the cavity, was the fact that the appendix was difficult to locate. Next, when the feel had indicated its location, that the cæcum, and adjacent bowel *were not free,* requiring much effort, and some time, to bring the appendix into view. When this had been accomplished, an inspection of the "little assassin" (Price) would reveal the fact that it was free from active inflammation; with, seemingly, no constriction of its lumen; but, in most cases exceedingly long, and welded to the bowel from base to

tip; with a web of tissue for its entire length, and opposite the meso-attachment, giving, for all the world, an appearance like the webbing of a duck's foot as it goes between the toes. On passing the hand about the locality, as far as the fingers could reach, obstructive bands were found, seemingly sufficient to prevent rotation of the bowel, and promising also grave interference with normal peristalsis.

In each of these cases, the binding tissues were severed and the appendix dissected from its fixation to the bowel and removed, with primary closure, of course, as the cases were clean. Marking the convalescence in these cases, which was otherwise uneventful, pain, within the first forty-eight hours, was a prominent feature, requiring a palliative. For this pain there is a reason, lying first, perhaps, in extent of territory throughout which repair of raw surface is in progress, and also in resentment on the part of the "highly irritated sympathetic nerve ganglia in this region" (Morris). Since operation these patients, being of both sexes, have improved. The crises of pain have disappeared; and the constipation, flatulence, and other disturbances of digestion are less marked.

And now, just one thought has come to me in the matter of handling these cases, and it is this: with a fair certainty of diagnosis, refinement of which is the acme of professional attainment, and the chance of pus eliminated; to reach them through a free *right rectus* incision, giving ample room for both inspection and work, in freeing constricting bands, and in removing the appendix, would simplify the operation very much, and give us better promise for its outcome. As to method of removal of the appendix, with a perfect toilet, and simple technique, there is really little choice, the chief aim being an avoidance of dead space, dead ligature or stump in bowel wall at the site of its removal, and in effecting the least amount of anatomical distortion to either its lumen, or the arrangement of the muscular fibers which control the peristaltic function of the cæcum.

Bearing these points in mind, it really seems to me like a herald of the dawn of Ideal Preventive Surgery, in which era we will remove the causative conditions productive of the distorting and fatal pus cases; with their distressing clinical picture before operation, the trying ordeal at the time, and the tedious convalescence afterward.

REPORT OF A CASE OF TETANUS, DEVELOPING FIVE DAYS AFTER CONFINEMENT OF TWIN PREGNANCY.

J. V. McGougan, M.D., Fayetteville, N. C.

In the beginning I wish to state that my knowledge of this case is very superficial and I wish to take this opportunity to thank Dr. J. F. Highsmith, to whose hospital this patient was brought for delivery, for the privilege of reporting this case. I do not report this case as a curiosity, but after searching the literature carefully, I find that up to 1890 the number of cases of tetanus developing after operation, including intra and extra abdominal operations, was 101. I would also state that up to this time we did not have the use of antitetanic serum and from 1890 to 1909 there were 49 cases more, making a total of 150. It is interesting to note that in these very extensive reports up to 1909 there had not been a single case developing in obstetrical practice. Therefore, it is for this reason that I wish to report this case before the Society for the benefit of its members in the treatment of such cases as I shall report.

CASE REPORT.

M. C. Age, 25. Negro. Was admitted to the Highsmith Hospital on the 5-15-14 at 11 p. m. Was in labor for four days previous to admittance to the hospital. At the close of the second day the membranes ruptured. She was examined at the close of the fourth day for the first time and there was found to be a hand presenting with the probability of twin pregnancy. The patient being in a small room and the accommodations very poor it was deemed best to place her in the hospital where she could receive aseptic treatment. Upon examination at the hospital there was found, as stated above, presenting hand, vulva intensely swollen and edematous. All parts showed signs of congestion. She was given a small quantity of chloroform and the child was delivered without difficulty by version. This child was dead and evidently had been dead for a number of hours. Immediately the presence of the second child was diagnosed and delivered in a similar way. This child is living and doing well. Patient reacted, lochia normal and it looked as though she would make an uneventful recovery. Temperature ranged from 99 to 99.5 until the fourth day, at which time her temperature was normal during the entire day. On the morning of the fifth day the patient complained of a sore throat, was examined and found to be negligent. On the afternoon of the same day she complained of soreness in the muscles of the neck, headache and pain in the dorsal region of the back. Tetanus not being suspected, an antiseptic mouth wash was ordered and a purgative administered. On the following morning or the sixth day of convalescence she first manifested stiffness of the jaw and it was at that time that a diagnosis of tetanus was made. Immediately she received 6,000 units of anitetanic serum, also morphine, bromides and chloral, all of which were of no avail. The disease rapidly progressed and the patient developed opisthotonos and

died twenty-four hours later, which made it at the close of the seventh day of convalescence, or the second day of the disease.

A factor of much interest in this case was the apparent development of prodromal symptoms of tetanus in three persons in the hospital who were slightly exposed to this infection, two of them being nurses. These symptoms were identically those of which the colored woman complained, viz.: fever 99 to 100, sore throat which was negative upon examination, soreness in the muscles of the neck, pain in the back of the head and dorsal region of the spine. Of course I cannot say definitely that these symptoms were due to tetanic infection, but these people, being ignorant of the symptoms of the disease, all described so perfectly the same line of symptoms as the woman who truly developed tetanus, that the suspicion was so great and the fear of the disease so intense, that Dr. J. F. Highsmith advised the administration of an immunizing dose of antitetanic serum of 1,500 units to be given to each of the three. Such orders were carried out and all symptoms were relieved within eight hours after the administration of the serum.

Upon reviewing the statistics of the past twenty years, it has been proven by the numerous cases reported that the majority of the cases develop from the seventh to the eleventh day, of the post-operative convalescence two-third to four-fifths of all cases develop from the seventh to the ninth day. This case developed on the fifth day. Cases have been reported developing as late as the twenty-fifth day.

As to the cause of the source of infection in this case it is impossible to state specifically; however, considering the surroundings of the patient and the fact that she was in labor for three days without attention, the membranes having ruptured two days before delivery with prolapse of the hand, I think there is no doubt but that infection was present before coming to the hospital and was received in the patient's home, in all probability, gaining entrance through some traumatic area of the vulva.

In all cases of post operative tetanus there is not a single instance where surgery has not placed the blame of infection upon the use of improperly prepared catgut; there being no catgut or sutures of any kind used in this case, this cause is absolutely eliminated.

Treatment.—In the beginning I want to urge upon every one of you that in all cases in which there is a possibility of tetanus infection in any portions of the body, whether in obstetrical practice, surgery, gun shot wounds or wounds of any nature, no one ever loses anything by administering an immunizing dose of antitetanic serum or at least recommending its use, even though the patient refuses the use of this agent. Once the disease has manifested itself, the antitetanic serum is

of no value more than to neutralize the toxins which are being produced and prevent their effect upon the nervous system, these, of course, being the tissues of the body which are most affected by the tetanus bacillus and its toxins.

Prognosis.—Up to 1890, as stated above, we did not have the use of antitetanic serum. In a total number of 101 cases the mortality was 94 per cent; in 49 cases which have been treated since 1890, 43 of them having received antitetanic serum, the mortality was 88.5, making a difference of 5.5 per cent. Of course this means the use of antitetanic serum after the disease has once developed. While the difference in mortality is not a great one, yet considering the character of the disease, it is always worth while to use all the available means of treatment. Other means of treatment are used to control the spasmodic conditions of the muscles, which only relieve the symptoms and do not act as curative agents. These are chloretone in large doses. Morphine, bromides, chloral and the subarachnoid injection of a solution of magnesium sulphate has been recommended, but its power to paralyze the respiratory system is so great that its use is not warranted. The prognosis depends to a great extent upon the time of occurrence of the disease and the rapidity of its symptoms, which are indicators as to the severity of the infection and the failure to respond to antitetanic serum and other means of treatment. There is no case on record developing within the first two days following operation. The sooner the case develops the more fatal the disease and the later the development the more favorable.

Dr. J. T. J. Battle: Gentlemen, we have with us one who will not let himself be called doctor, but who has kindly consented to talk to us for five minutes. I am sure we will all be glad to hear Mr. John E. Ray, of the State School for the Blind, Raleigh, N. C.

Mr. John E. Ray, of Raleigh: I want to express the high appreciation for the compliment which has been conferred upon me today. Two years ago, I had the pleasure and privilege of attending the session of the North Carolina Medical Society, and it has been a source of benefit to me. I sat here last night listening to some of the most thrilling speeches that I have ever listened to. I want to express the profound gratitude for the honor that has been conferred upon me. I do not attempt to bring you any information. I could not possibly presume to try to instruct you, but I want to beg your indulgence while I try to lay before you the fact that in our State there are men and women who are groping in darkness, and men and women whom we might help if we could only see the conditions as they really are. I

will now read my paper on one of the most important matters, to my mind, that can be brought to your minds.

A CRUSADE AGAINST BLINDNESS.

One of the most distressing misfortunes which can befall a person is to lose one's sight. The number of this class of our citizens is very great—one hundred thousand in America alone. There are nearly two thousand in North Carolina.

The question naturally arises, Is there any means to prevent this? Can anything be done to lessen the number of those thus afflicted? Not many can be fully and entirely relieved, or cured. By skillful operations a few can secure at least partial relief, but the vast majority are doomed to a life of physical darkness. What then can be done to lessen the evil?

PREVENTION.

It is much more easy to prevent an evil than to cure or eradicate it. Who can stay the ravages of the "White Plague"; who stop the progress of typhoid, malaria, or yellow fever? The only hope is in preventing them. So with blindness. Well, how?

Let us consider some of the most prolific causes of blindness. The statistics gathered by the authorities of the State School for the Blind at Raleigh show that of the 404 students enrolled during the biennial period 1910-1912, thirty became blind by accident; seventy-five were born blind (congenital); ninety-three are blind from ophthalmia neonatorum (blindness of the new-born), and ninety-nine from causes not named. The question occurs: Are any of these preventable? Yes; many of them. If parents had kept from their babies sharp-pointed instruments or objects—scissors, knives, pencils, sticks, etc.—and explosives, many of their children would now possess sight. If fewer cousins had married, fewer congenitally blind persons, the number would have been decreased considerably. And if the eyes of every newborn baby had received proper attention within twenty-four hours of its birth; if they had been thoroughly washed in a solution of boracic acid, and then one drop of a one per cent solution of silver nitrate had been put in each eye, at least one-fourth of all these children would now have normal sight.

These latter are the offspring of parents at least one of whom has led an impure life, or has come in contact with someone who has. In this day, then, of germ theories, and germ transmission, would it not be wise that the eyes of every child, however pure and clean may have been the habits of its parents, should receive such care and treatment?

Properly treated there can be no danger; neglected, no one knows what may result.

And the treatment will cost not more than ten cents and require only a few moments' time. Is it not worth the time? And yet I wish to throw out one warning, raise one danger signal. Never should a stronger solution of silver nitrate be used than *one per cent.* And *never* should a midwife, nurse, nor even a general practitioner undertake to prepare the prophylactic. This has been done by the experts in the profession and can be secured from any well equipped drug store in such quantity and shape as to render a mistake almost impossible. The little ampules contain two small receptacles each containing eight drops, these ampules being hermetically sealed and the light entirely excluded. They are also dated, so as to insure against age and deterioration, and may be exchanged for new ones, if not used within the prescribed period.

I have not referred in the above to trachoma (granulated lids). This is a most painful and distressing disease of the eye, and there seems to be no known remedy. It is also very contagious. Only recently an epidemic of trachoma has broken out in certain counties in southwest Virginia and in West Virginia. At last accounts there were 450 cases of this frightful malady. Is there no relief for those thus afflicted? Isolation should be practiced in the most stringent form.

Dr. J. T. J. Battle: I am sure that all of us highly appreciate the splendid remarks made by Mr. Ray. If he were not already considered one of us, I think that we should make him an honorary member right now.

Memorial Exercises

REPORT OF OBITUARY COMMITTEE.

Mr. President and Members of the Medical Society:

Your Obituary Committee, having made diligent inquiry as to the mortality of our profession during the past year, beg leave to report the following names: Respectfully submitted,

E. G. Moore,
A. W. Knox,
M. L. Stevens,
Obituary Committee.

Dr. G. A. Coggeshall, of Granville, died in Oxford, N. C., January 29, 1914, at 60 years of age.

Dr. Nathan Anderson, of Wilson, died May 18, 1914, aged 63 years. Dr. Anderson was a graduate of the University of Virginia and practiced in the town of Wilson. He was genial and kind-hearted, a good student and a quiet and successful practitioner of his chosen profession.

Dr. J. T. Graves, of Wilson, died March, 1914, aged 79 years. He had not been in active practice for a number of years owing to advancing years and a stroke of blindness which overtook him; but continued to interest himself in the welfare of his people and his section.

Dr. Gifford E. Young, of Forest City, died January 20, 1914, aged 69 years. Dr. Young enjoyed a large practice for more than forty years and held the confidence of the medical profession.

Dr. N. H. Street, of New Bern, died December 1, 1913, aged 56 years.

Dr. J. W. McPherson, of Alamance, died, aged 43 years.

Dr. W. L. Abernethy, of Hickory, died August 11, 1913, aged 63 years.

Dr. J. R. Reitzel, of High Point, was killed in an automobile accident at Greensboro where he had been summoned to appear in court as a witness. He enjoyed a good practice and was esteemed as a worthy physician.

Dr. W. J. Clontz, of Buncombe, died August 11, 1913, aged 59 years.

Dr. Durant Hatch Albright died at his home in Alamance County, in his 88th year. He was a man of wide experience, keen observation and successful business.

Dr. D. W. Bullock, a well known surgeon and physician of Wilmington, died at his home after an illness of ten days. He was born in Tarboro in 1853 and removed to Wilmington in 1890, and was for years visiting surgeon to the Atlantic Coast Line. He was director of the Eastern Hospital for the insane at Goldsboro. He was a public spirited citizen, as well as a surgeon of ability.

Dr. Robert S. Young, of Concord, died June 18, 1913, aged 50 years. Dr. Young was one among the most prominent members of the Medical Society, and his sudden death comes as a shock to those who knew and loved him.

Dr. Thomas A. Allen, of Hendersonville, died at the ripe old age of 89 years.

Dr. E. E. Kluttz, of Rowan, died, aged 58 years. A popular physician and a prominent citizen.

Dr. W. H. Wooten, of Mecklenbug County, died February 10, 1914, aged 45 years.

Dr. Whitford Brooks, of Transylvania County, died January 17, 1914, aged 73 years.

Dr. Pride Jones Thomas, of Wilmington, a graduate of the University of Maryland and local surgeon for the Atlantic Coast Line, died in September, 1913, aged 38 years. Dr. Thomas bore the distinction of being a courteous gentleman and was universally beloved by the profession of his native town.

Dr. John R. Moose, of Henderson, died suddenly May 3, 1914, aged 77 years.

Dr. J. D. Croom, of Maxton, died January 5, 1914, aged 69 years. Dr. Croom was one of the leading physicians of Robeson County, a man of ability, a good citizen and a Christian gentlemen. His loss will be keenly felt.

Dr. Samuel A. Henley, of Asheboro, died March 11, 1914, aged 78. He had practiced medicine in the county for over fifty years, doing great service to humanity and giving relief to many who were unable to compensate him.

Dr. J. D. Wellons, one of the oldest physicians of Johnston County, died at his home in Four Oaks, February 18, 1914, in his 86th year. He had been an active physician for 53 years.

Dr. Gurley D. Moore, of Mt. Pleasant, died November 8, 1913, at the early age of 30 years. A master of his profession, his death was peculiarly sad. A young man of brilliant attainments, he decided to specialize in the treatment of pulmonary diseases. While engaged in the study of tuberculosis in one of the institutions of Baltimore, he contracted this disease and eventually succumbed to it.

ROBERT SIMONTON YOUNG.

The legacies most treasured by a country are the records of the faithful, honorable lives of her departed sons. "Ill fares that land fast hastening to decay" that contains few such chronicles. I come to the consideration of one who departing left behind him footprints of high endeavor and usefulness on the sands of time which should prove an inspiration to the generation which he served and those coming after him. The sudden death of this gifted loyal member of our body and profession, with its dramatic setting, gives striking verification to the oft-recurring adage that "Death loves a shining mark." His death occurred on the morning of June 18, 1913, near Landis, N. C., in his native county, Cabarrus. He had reached the apex of matured manhood, and was in his 51st year, having been born September 28, 1861, in Cabarrus County, N. C., two miles from Concord. The circumstances of his going had in them an element of tragedy, a conscious undaunted spirit in unequal contest with the grim conqueror. A few days previous to his death symptoms well calculated to alarm his fears had led him to consult Dr. William Allan, of Charlotte, N. C., by whose courtesy I am permitted to give his diagnosis of his case, arrived at with scientific precision: Acute pancreatitis, secondary to or associated with cardio-renal disease.

On the morning of this fateful day, June 18th, he started in his automobile to consult his life-long friend, Dr. John Whitehead, of Salisbury. With him at the time was the devoted wife of his young manhood, a brother physician and his brother-in-law. When about ten miles from Concord, at the crossing near Landis, he suddenly threw his hands to his heart and exclaimed: *"It is all over,"* and verily, the silver cord was loosened and the golden bowl was broken at the fountain. Fitting words, "It is all over."

The trust which had been put into his hands had been faithfully kept, as a citizen of his town and State, as a member of his loved profession, as a devoted husband and father. The record was full, true and clean. The last chapter was written, the manuscript was in the hands of the Great Printer.

He was born, as stated, in Cabarrus County, near Concord, at the beautiful country home of his father, Major Robert Simonton Young, on the 28th day of September, 1861. His father was of Scotch-Irish descent, and came from one of the best and most prominent families of Cabarrus County, and most worthily did he bear the old name, and when he fell in defense of a cause he deemed just, his home and country, he left a spotless record as a husband, father, citizen and soldier. The young son who was to bear and preserve the honor of his name was just on the threshold of childhood. Left to the guidance of his mother, his future life bore testimony to the fidelity with which she discharged her duty. This mother was Miss Sarah Virginia Burton, who after a long life, rich in years of faithfulness, died in Charlotte, N. C., the past year. She was a daughter of Alfred M. Burton, of Lincoln County, N. C. Her earliest known ancestor was Noel Hunt Burton, who was the father of Hutchins Burton, a colonel in the Revolutionary Army, and a member of the Colonial Congress. While he, the subject of our sketch, was still a boy his mother moved to Charlotte and placed him in the High School, and later in the Carolina Military Institute. The impress of the latter remained with him, for there was ever about him a military air and dignity, coupled with a rare geniality. Dr. Young was prepared to enter on his course as a medical student at the University of Virginia, and later took his degree from the New York University of Medicine, in 1881. He received license from the Board of Medical Examiners in 1882, and immediately had his name enrolled as a member of the North Carolina Medical Society, which met that year at Concord, his native town, with the loved Thomas F. Wood, as President. He began the practice of his profession that same year at Matthews, Mecklenburg County, N. C. He remained there less than two years, when he located in Concord, where his life henceforward was spent in the arduous labors of his profession, in which he spared neither time nor strength in the conscientious discharge of his duties. And his home paper, to which I am indebted for much of this data, says he did not fail of his reward, for not only was he firmly established in the confidence and affection of hundreds of those he administered to in his town and county, but it is also a matter of pride with them that his reputation is not confined to his State lines, but is well known far beyond its borders, among the most prominent members of his profession. At different times he took courses in the post gradute schools of New York, thus keeping abreast with the progress of the day in his profession.

As high evidence of his professional standing and learning among the first doctors of his State, Dr. Young early in his professional life was the winner of the Essayist Prize of the North Carolina Medical

Robert Simonton Young.

Society, in May, 1886, at New Bern, N. C. I am indebted to Dr. J. Howell Way, easily the greatest secretary, up to his day, this society ever had, for the following data as to this essay:

"Robert S. Young was elected Essayist at the annual meeting of the Medical Society of the State of North Carolina in 1885, and at the thirty-third annual session of the State Society, in New Bern, N. C., May, 1886, he presented the Annual Essay, entitled, 'ARTIFICIAL ALIMENTATION.'

"This paper was one of the few contributions made by Dr. Young to the literature of his profession, for while he wrote with both erudite and facile pen, he evinced through his whole career a decided aversion to writing medical articles, and in only a very few instances did he vary from his custom.

"The essay presented at the New Bern, 1886, session of the State Society was listened to with earnest attention, and was freely discussed at its conclusion by Drs. Landon B. Edwards and Hunter McGuire, two of Virginia's most renowned medical men, and John McDonald, R. L. Payne, Sr., and Charles J. O'Hagan, of our own State.

"The five distinguished gentlemen discussing it afford most convincing evidence of its unusual worth, though the manuscript was loaned to the author for some minor corrections, and unfortunately lost in the mails, never reaching the secretary's hands, and hence omitted from the well merited dignity of preservation in our records."

He early impressed himself upon his brethren of the Society as a man of high endowments, and they were not slow to confer their honors upon him. In 1890 he was elected on the Board of Medical Examiners and continued to discharge the high and exacting duties of this office until 1894—four years. In 1901 he was chosen President of the North Carolina Medical Society, and all who were present at the meeting at Wilmington (Wrightsville) in 1902, will recall with what dignity and ease he presided, showing himself a master of assemblies. He was appointed surgeon of the old Richmond & Danville Railroad in 1891, and held this important trust with their successors, The Southern Railway Company, until the time of his death, a period of twenty-two years. Dr. Young at the time of his death was Superintendent of Health of his county. In addition to membership in his State Society, he was a member of the American Medical Association, the Association of Military Surgeons of the United States, the Association of Surgeons of the Southern Railway Company, etc., also examiner for all the leading insurance companies in the country. He rendered a notable service in organizing the medical department of the National Guard of North Carolina into its present effective form, which he

modeled after that of the United States Army, and in efficiency and equipment it is second to that of no state in the Union.

As a citizen he took an active part in public affairs; although he never sought political preferment, he took a great interest in politics. His advice and great influence were sought and reckoned with throughout many of the greatest political campaigns of his day. In Democratic councils he was in the forefront. For a number of years he was chairman of the Democratic Committee of his county, and was a delegate to the Great National Convention at Baltimore, which placed the Presidency in the hands of Woodrow Wilson, his schoolmate and friend of years before.

By honorable practice of his profession and rigid adherence to the principles and rules of business life, Dr. Young succeeded well financially. He was president of the Young-Hartsell Mills Company, Concord Perpetual Building & Loan Association, and director in most of the leading industries of his country.

This record would be incomplete without mention of her, in whose arms he fell on sleep, who adorned so charmingly his lovely home and now keeps vigil over its deserted and dismantled hearthstone. On the 19th of February, 1885, Dr. Young was married to Miss Nannie Moss Erwin, daughter of Mr. and Mrs. J. R. Erwin, of the City of Concord, N. C., who, with one son, Ensign Robert S. Young, Jr., of the United States Navy, now stationed in Asia, survive him.

"Bob Young," as his friends delighted to call him, was commanding and handsome in appearance. Of charming personality, he easily won and held the esteem of all who came in contact with him. Broad intellectually, with sound judgment, he inspired the utmost confidence, and few have been more idolized by their patients and held in higher esteem by their colleagues.

But as honor's voice nor animated bust can call back the fleeting dust, nor flattery soothe the dull cold ear of Death, I leave him asleep in his village churchyard, where I saw them lay him amid a wilderness of flowers, after a service of deep feeling and tribute, attended by a concourse of people far beyond the limits of his favorite church. In the emotion betrayed by word and voice, and in the hush of the great congregation I read *They loved him.*

With this imperfect tribute I close with the unfaltering trust that "on that bright June morning after death he saw a more glorious sun rise, with unimaginable splendor above a celestial horizon, which shall never go down."

THOMAS E. ANDERSON.

DAVID WILLIAM BULLOCK.

Dr. David William Bullock, the subject of this sketch, was born in Tarboro, Edgecombe County, N. C., June 1, 1853. He was named for his honored father, and his mother, before her marriage, was Miss Mary Margaret Routh, descended from a well-known family of Edgecombe. His paternal and maternal forbears can be traced directly to the Lees, of Virginia, and the Bryants, Rouths, and Cromwells, of England. He grew up a strong, healthy, intelligent lad in his native county, made memorable by its rapid rise agriculturally, its citizenship of wealth and refinement, and the blood of many heroes. The vicissitudes of the war seriously interfered with his early education; but he was a fine example of the well-known statement of Webster: "Costly apparatus and splendid cabinets have no magical charms to make scholars."

Denied the advantage of a thorough collegiate training, he, however, advanced rapidly at the best schools in Edgecombe, under the tutelage of such consummate masters as Wilkerson and Belmont. What he lacked in his youth, in the way of literary finish, he endeavored by long, solitary hours of study and reflection, in after years, to make up for the loss. He succeeded most admirably, for when the summons came for him to go hence, to be forever with the Great Physician, his spacious storehouse was filled with the best in literature and medicine. He illustrated clearly that:

> "The heights by great men reached and kept
> Were not attained by sudden flight;
> But they, while their companions slept,
> Were toiling upward in the night."

A full year before reaching his majority, he was a graduate in medicine of the University of Maryland, where he ranked easily among the first in a large class. Immediately after his graduation he was appointed one of the internes at the University Hospital, which place he acceptably filled for one year. Afterwards, he served on the staff of the Associated Medical Charities of Baltimore, and some years subsequently, held a like position at the Mothers and Babies Hospital in New York.

During his residence in New York, being athirst for medical knowledge, he entered himself as a pupil under Dr. Robert H. M. Dawbarnon and Dr. John A. Wyeth, two eminent and distinguished physicians, the latter of whom is still living to adorn the profession. For seventeen years he assiduously plied his calling with conspicuous ability and profit in the fertile and flourishing county of old Edgecombe.

He daily grew in favor among the people there, and as the years glided by, his practice increased, and his reputation as a physician and surgeon extended, and when he went to Wilmington, in March, 1890, for a larger field of professional usefulness, he was in the prime of mental and physical manhood, broadened by experience and culture, and with a name the peer of any physician in the realm of his nativity. He was endowed with a large, active, vigorous brain, a tenacious memory and sound judgment; and a trained, comprehensive intellect rendered him an able diagnostician, and gave him immediate recognition in his adopted city. He studied his cases most thoroughly, carefully weighed the evidence, and diligently strove with all his powers of concentration to arrive at a correct solution. The more intricate and difficult the case, the harder he labored to master it; and never wearied, never faltered, until the light unfolded. In his new home his practice increased steadily until it taxed his vigorous constitution, when he took his brilliant, gifted son, Dr. Ernest S. Bullock, in co-partnership with him, and they, together, for four years, pressed forward upon a career of usefulness and splendid results until the father fell on sleep.

Dr. Bullock was known as one of the best and most successful surgeons of the entire lower Cape Fear section. His consulting practice was extensive, and patients came to him from far and near. It so happened that he was called upon to perform many operations that looked not only formidable but impossible, and by his courage, insight, ability and dexterity he almost always restored such patient to health and happiness. He strove to do things accurately and well, with a view to the best results, rather than to be merely brilliant with the knife, feeling and believing that speed alone was more a mark of rashness and weakness than of true greatness. When the time came to be expeditious he could be swift enough. Thorough, complete work as an operator was his motto.

He was the founder of the Catherine Kennedy Home, an institution that stands as a monument to his philanthropy and fine business sense. The Home is still in a flourishing condition, and it has been the happy means of aid and comfort to the decrepit and diseased womanhood of Wilmington and New Hanover County. He was one of the founders of the Associated Charities of Wilmington, one of the organizers and at one time president of the Association of Surgeons of the Atlantic Coast Line Railway Company, embracing six states. He was founder and for ten years surgeon of his own infirmary. He was visiting surgeon to the James Walker Memorial Hospital and Atlantic Coast Line Railway Company, and surgeon to the Travelers' Protective Association. He was a director of the Eastern Insane Hospital, member of

the North Carolina Medical Society and one of its vice-presidents, member and once vice-president of the New Hanover Medical Society, one of the Board of Health of New Hanover County, a member of the New York Neurological Society, was connected with the Edgecombe Medical Society prior to his citizenship in Wilmington, and at the time of his death president of the Onslow Medical Society.

He believed in the brotherhood of man, and was a member of a number of fraternal organizations, including the Masons, Odd Fellows, Woodmen of the World, Knights of Pythias, and held the office of district surgeon of the T. P. A.

During his long, active, eventful service, which extended over a period of forty years, although he was busy both day and night, he still found time to contribute papers of merit and force to the medical press, including those of original thought and investigation.

As early as 1876, he demonstrated that it was the fit and not the toxemia that produced death in eclampsia, and if the pulse were slowed to sixty with veratrum viride, convulsions would hardly ever occur.

In brain surgery he was a pioneer, and in intracranial hemorrhage and injuries performed numerous operations where the cases seemed hopeless. A number of years ago, thinking, I suppose, I carried some slight information of the cranium, and had a little knack of drawing, he came to see me at least six or eight different times relative to an intricate and difficult head injury to a young lady, due to sudden and violent impact against a gatepost, which caused frequent epileptic siezures of the major mal variety, and seriously inferfered with her usefulness.

This lady had been to Baltimore and New York for help and, I understand, an operation was declined by the surgeons. Dr. Bullock studied the anatomy of the case with avidity, searched different surgeries for light, would manufacture various devices which he thought might be helpful if he undertook to perform an operation, practiced with a dental engine, if it, happily, might be of use; and after days and nights studying and pondering, he finally resolved it was a duty he owed his patient and himself to operate. I was invited to the operation. The dental engine was there, with many original appliances, some of which he used. The injury was over the parietal bone, between the sagittal suture and the right ear, but nearer the suture. There was a pulsating enlargement protruding above the surface larger than a green grown walnut. Results were excellent. I recite the incident to show his painstaking care and diligence. He was a public-spirited citizen; possessed fine business capacity but with limited time to indulge it.

He loved nature, children and flowers, and his grave, with the surrounding earth, was embellished with a rich profusion of lovely buds and blossoms, a delicate testimonial of his love of the beautiful.

He was a consistent member of the Methodist Episcopal Church, had a strong hold upon his patients and friends, dispensed a charming hospitality at his comfortable home on Fourth street, and he will be missed as few men are.

On the afternoon of May 6th, within a few days of his sixty-first year, Dr. Bullock died at his home, in Wilmington, of a virulent type of typhoid fever, which rapidly ran its course, and "when life's long night was ended, he saw the open way to eternal day."

He leaves a wife, formerly Miss Maud S. Braswell, daughter of Archibald and Margaret Braswell, of Edgecombe; one daughter, Miss Maud M., and one son, Dr. Ernest S., with numerous relatives and friends to mourn their loss. May the daisies bloom sweetly forever over his bier.

W. C. Galloway.

DR. GARLEY DAVIS MOOSE.

Dr. Moose was born in Mt. Pleasant, Cabarrus County, N. C., June 17, 1883. He was educated in his native village, taking his A.B. degree with first honor from North Carolina College in 1901, before he reached his eighteenth year, being the youngest member ever graduating from the institution. He graduated from the Maryland College of Pharmacy in 1903 with first honor, having won three medals from his competitors. Having spent one year with a prominent drug house in Baltimore, he took up the study of medicine in the city of Baltimore and was graduated from the Medical Department of the University of Maryland in 1907 with high honors, having won a hospital appointment at the end of his second year which he filled the succeeding year in connection with his senior work in college.

After having completed his medical course, Dr. Moose located in his home town, where he practiced with marked success until the fall of 1912, when by reason of disease he was compelled to discontinue work. He died November 7, 1913, esteemed and beloved by all who knew him, not simply on account of his high worth as a physician, but also as a Christian gentleman and a most worthy, public-spirited citizen of his town and county. He was a member of the County Board of Health, as well as health officer and alderman of his town.

Dr. Moose was an active and efficient member of the Cabarrus County Medical Society, of which he served as president for one year.

DR. HENRY CLAY HOUSTON.

Dr. Henry Clay Houston, who died February 11, 1911, of tuberculosis, was a native of Waxhaw, N. C., where he was born April 5, 1870. His preliminary education was obtained at Trinity College, following which he graduated in medicine at Vanderbilt University in 1894. He was married in 1897.

Dr. Houston's seventeen years of practice was interrupted in 1903, when he was compelled to go to Asheville to restore his health. He spent one year there, and resumed his practice later, continuing it until a short time before his death.

He as a man of devout Christian principles; loyal to his county society and to the profession at large; member of the Methodist church and the Masonic order; a citizen of the highest type.

DR. ROBERT MINTER ROBERSON.

Dr. Robert Minter Roberson, who died June 9, 1907, of appendicitis, was born December 13, 1872, near Pittsboro, N. C.; was educated at the University of North Carolina and the University College of Medicine, in Richmond, Va.; was graduated from the latter college in 1899, and was licensed in 1899. After practicing for five years at Cumnock, Chatham County, he removed to Waxhaw, Union County, where he was engaged in practice until his death.

Dr. Roberson was a Christian gentleman, a member of the Baptist church, and was always guided by the very highest principles of human conduct. His body was removed to Chatham County, where hundreds of friends gathered to participate in the Masonic burial rites, and to do honor to his memory.

He is survived by his widow, Mrs. Mary Gilmore Roberson, and three children, who reside at Goldston, Chatham County.

DR. WILLIAM A. DEES.

Dr. William A. Dees, who died June 1, 1910, from an attack of paralysis following chronic epilepsy, was a native of Marshville, N. C., where he was born April 3, 1859. His medical education was obtained at the University of Georgia, where he graduated in 1891. After working three years in pharmacy, he passed the examination of the Board of Medical Examiners and was admitted to the practice of medicine.

Dr. Dees had been a member of the Baptist church from early youth; was always truthful and honest; and took an active interest in the medical society of his county.

Proceedings of the House of Delegates

WEDNESDAY, JUNE 17.

Meeting called to order by President J. M. Parrott.

The Secretary was instructed by a vote of the House of Delegates to enter in the list of Honorary Fellows all those who have met the requirements for Honorary Fellowship.

It was moved that any gentleman who had been a member of the State Society for thirty years or more, and who had failed to pay dues for some years, might be reinstated upon payment of back dues, provided he is now an active member in good standing, and provided further that his own word may be taken as evidence of this fact, in the absence of other evidence. This motion was carried.

DR. J. W. HALFORD asked how to harmonize the fact that the State Society is now receiving the dues from the county societies with the constitution and by-laws, and how doctors can leave one county society, being far in arrears, and join another society. He stated that some who had done this were on the program.

DR. OSCAR MCMULLAN: I think the Doctor's remarks are well taken. We have a law, I understand, that dues shall all be paid by the first of January. It is almost uniformly disregarded. A law without a penalty is no law, so my idea is that the dues shall remain $2.00, provided they are paid by the first of January of the current year; and if not so paid by that time, they shall be $3.00. I make this as a motion.

DR. JOHN A. FERRELL: I think the suggestion of Dr. McMullan, if it would be practicable in every way, would be a fine suggestion. The great objection I see to it is that the average physician, while meeting his obligations regularly, does not feel that membership in the State Society is worth enough for him to attend to this matter promptly. If you increase the membership fees, you will not get enough of them paid to keep up the Society. I would like to see every reputable physician in the State a member of the State Society, and we must do something that will make the State Society more valuable to physicians.

DR. MCMULLAN: I can see what the doctor means, but what is the use of having a law unless it is regarded?

DR. FERRELL: In view of the fact that the constitution comes up tomorrow for consideration, it seems to me that some time might be saved if Dr. McMullan will reconsider his motion and let the matter be thrashed out tomorrow.

Dr. McMullan withdrew his motion.

Dr. H. D. Walker here read his report as Treasurer.

REPORT OF THE TREASURER.

Amount on hand July 1, 1913	$1,176.46
Interest to July 1, 1913	21.08
Amount collected from July 1, 1913, to January 1, 1914	46.00
Interest from July 1, 1913, to January 1, 1914	12.10
	$1,255.64
Total amount expended from July 1, 1913, to January 1, 1914, as per attached report	1,169.28
Amount on hand January 1, 1914	$ 86.36

H. D. WALKER, *Treasurer.*

We, the undersigned Finance Committee, have examined the books of the Treasurer and checked his vouchers and checks and find his books neatly kept and accounts correct to January 1, 1914.

O. McMULLAN,
D. A. STANTON,
Finance Committee.

COLLECTIONS FROM JULY 1, 1913, TO JANUARY 1, 1914.

ANSON COUNTY MEDICAL SOCIETY.

Dr. J. L. Wyatt	$ 2.00

CABARRUS COUNTY MEDICAL SOCIETY.

Dr. W. H. Wadsworth	$ 2.00
Dr. J. M. Matthews	2.00
Dr. J. F. Reid	2.00
	$ 6.00

CURRITUCK COUNTY MEDICAL SOCIETY

Dr. Stewart Mann	$ 2.00
Dr. Will Cowell, 1912-1913	4.00
	$ 6.00

IREDELL-ALEXANDER COUNTY MEDICAL SOCIETY

Dr. H. F. Long	$ 2.00
Dr. Ed. S. King	2.00
Dr. A. E. Bell	2.00
Dr. W. D. Gilmore	2.00
	$ 8.00

MOORE COUNTY MEDICAL SOCIETY

Dr. M. E. Street	$ 2.00

MACON-CLAY COUNTY MEDICAL SOCIETY

Dr. Mary E. Lapham	$ 2.00
Dr. S. H. Lyle	2.00
Dr. Wiley W. Rogers	2.00
Dr. F. L. Siler	2.00
	$ 8.00

PITT COUNTY MEDICAL SOCIETY

Dr. Wm. C. Whitfield	$ 2.00

RICHMOND COUNTY MEDICAL SOCIETY

Dr. J. I. Fowlkes	$ 2.00

ROWAN COUNTY MEDICAL SOCIETY

Dr. Clement	$ 2.00
Dr. C. M. Lentz	2.00
	$ 4.00

STOKES COUNTY MEDICAL SOCIETY

Dr. W. B. Moore	$ 2.00

WILKES COUNTY MEDICAL COUNTY

Dr. R. W. S. Pegram, 1912-1913	$ 4.00
Total amount collected from July 1, 1913, to January 1, 1914	$ 46.00

AMOUNT RECEIVED FROM THE FOLLOWING COUNTY SOCIETIES SINCE JANUARY 1, 1914.

Alamance	$ 12.00	Mecklenburg	$ 128.00
Avery	16.00	Moore	30.00
Anson	8.00	Madison	16.00
Bladen	14.00	Macon-Clay	8.00
Buncombe	126.00	Montgomery	12.00
Burke	26.00	Martin	26.00
Brunswick	8.00	McDowell	12.00
Beaufort	30.00	Mitchell	4.00
Bertie	4.00	New Hanover	40.00
Cabarrus	40.00	Northampton	24.00
Columbus	26.00	Nash	36.00
Currituck	10.00	Pamlico	10.00
Caldwell	22.00	Pitt	2.00
Cherokee	12.00	Person	18.00
Carteret	14.00	Pasquotank-Camden-Dare	28.00
Chatham	30.00	Rowan	40.00
Chowan-Perquimans	18.00	Rockingham	28.00
Craven	26.00	Rutherford	42.00
Durham	74.00	Robeson	46.00
Davidson	22.00	Randolph	22.00
Edgecombe	22.00	Richmond	20.00
Franklin	18.00	Surry	42.00
Forsythe	68.00	Sampson	28.00
Granville	24.00	Scotland	22.00
Gaston	52.00	Stokes	22.00
Greene	8.00	Stanly	26.00
Halifax	12.00	Transylvania	14.00
Harnett	32.00	Union	32.00
Haywood	26.00	Vance	20.00
Hertford	20.00	Washington-Tyrrell	18.00
Henderson-Polk	28.00	Warren	10.00
Hyde	14.00	Wilkes	16.00
Iredell-Alexander	42.00	Wilson	44.00
Jackson	6.00	Wake	72.00
Johnston	36.00	Yadkin	14.00
Lincoln	24.00		
Lenoir	24.00	Total amount collected	$1,966.00

NOTE.—Subsequent to June 10 when this report was compiled 245 members paid their dues and their names have been printed in the lists for the various counties. This explanation will make clear why a larger number of names are printed for some counties than would be justified by the Treasurer's receipts on the date above indicated.—SECRETARY.

BILLS ALLOWED AND PAID FROM JULY 1, 1913, TO JANUARY 1, 1914.

July 9, 1913.

To John Williams, Inc., New York, to making one engraved brass tablet, size 4½ x 1¼ feet; inscription, "Patrick Livingston Murphy, M.D.," etc. ..... $ 11.00

Approved: James M. Parrott, President.
John A. Ferrell, Secretary.

July 9, 1913.

To Willis G. Briggs, Postmaster, Raleigh, N. C., to 250 2-cent postage stamps 5.00

Approved: James M. Parrott, President.
John A. Ferrell, Secretary.

July 16, 1913.

To H. D. Walker, Elizabeth City, N. C., to cash advanced for—

Postage	$14.25	
Telegrams	1.50	
Express, etc.	1.25	
		$17.00

Approved: James M. Parrott, President.
John A. Ferrell, Secretary.

To the Alpha Photo-engraving Co., Baltimore, Md., to 1 portrait and signature 4.50

Approved: James M. Parrott, President.
John A. Ferrell, Secretary.

August 2, 1913.

To Miss Mary Robinson, Raleigh, N. C., to 15 hours typewriting and clerical work at 50 cents, in connection with the annual session of the State Society..... 7.50

Approved: James M. Parrott, President.
John A. Ferrell, Secretary.

August 4, 1913.

To the Alpha Photo-engraving Co., Baltimore, Md., to half-tone plate of Dr. Duffy and signature..... 4.72

Approved: James M. Parrott, President.
John A. Ferrell, Secretary.

September 1, 1913.

To E. M. Uzzell & Co., Raleigh N. C.

6-10-13.	Rebinding registration book	$1.50	
6-26-13.	500 letter heads, President's office; 1,500 letter heads, Secretary's office; 250 letter heads, Treasurer's office	9.15	
6-30-12.	500 envelopes for Pres.	1.50	
	250 envelopes for Treas.	1.00	
7- 2-13.	Express to Dr. Walker	.40	
	Express to Dr. Parrott	.45	
			14.00

Approved: James M. Parrott, President.
John A. Ferrell, Secretary.

September 11, 1913.

To Edwards & Broughton Printing Company, Raleigh, N. C., to cash advanced on postage for Society Transactions and part payment for printing them..... 750.00

Approved: James M. Parrott, President.
John A. Ferrell, Secretary.

September 18, 1913.

To T. B. Eldridge, Raleigh, N. C., to making index and table of contents of 1913 Transactions..... 6.00

Approved: James M. Parrott, President.
John A. Ferrell, Secretary.

October 4, 1913.

To Edwards & Broughton Printing Co., Raleigh, N. C., to balance due for printing 1,200 copies of 1913 Transactions, and for mailing 1,148 copies $313.66

Approved: James M. Parrott, President.
John A. Ferrell, Secretary.

October 4, 1913.

To G. B. Justice, Raleigh, N. C., to preparing printing contract, making recommendations on the bids, and figuring amount printers should receive for 1913 Transactions..... 10.00

Approved: James M. Parrott, President.
John A. Ferrell, Secretary.

September 1, 1913.

To E. M. Uzzell & Co., Raleigh, N. C.

1,000 letter heads for Chairman Board Councilors; 500 letter heads for Secretary Board Councilors; 2,400 letter heads for Councilors	$13.00	
3,400 envelopes for Councilors.....	9.00	
Express on supplies to Councilors.....	3.90	
		25.90

Approved: James M. Parrott, President.
John A. Ferrell, Secretary.

Total amount expended from July 1, 1913, to July 1, 1914.....$1,169.28

AMOUNT EXPENDED SINCE JANUARY 1, 1914.

March 18, 1914.

To C. E. Gould, Washington, D. C., to furnishing, printing and addressing 1,900 postal cards sent to physicians in North Carolina:

1,900 postal cards at 30 cents per hundred.....	5.70	
Addressing 1,900 postal cards at 30 cents per hundred...	5.70	
Printing 1,900 postal cards.....	2.50	
		$27.20

Approved: James M. Parrott, President.
John A. Ferrell, Secretary.

May 11, 1914.

To C. E. Gould, Washington, D. C., to addressing 2,317 membership cards, collecting records from books of Bd. of Med. Examiners. 4.60

Approved: James M. Parrott, President.
John A. Ferrell, Secretary.

March 31, 1914.

The News and Observer Publishing Company, Raleigh, N. C., to advertising for missing volumes of Society Transactions: seven lines, three times, March 14 to 17, 1914..... 2.10

Approved: James M. Parrott, President.
John A. Ferrell, Secretary.

March 21, 1914.
The Observer Company $1.80
Approved: James M. Parrott, President.
John A. Ferrell, Secretary.
March 19, 1914.
John A. Ferrell 19.33
Approved: James M. Parrott, President.
John A. Ferrell, Secretary.

Total amount expended $55.03

TREASURER'S REPORT SINCE JANUARY 1, 1914.

Amount on hand January 1, 1914	$ 86.36
Amount collected from County Societies as per attached report	1,966.00
Total	$2,052.36
Total amount expended since January 1, 1914, as per attached report.	55.03
Balance on hand June 12, 1914	$1,997.33

Correct up to Jan. 12, 1914.
Attest: O. MCMULLAN.
D. A. STANTON.

Dr. McMullan stated, as a member of the Committee on Finance, that the Committee on Finance found the books and records of the Treasurer correct, and the Treasurer's report was adopted.

The committees on Public Policy and Legislation and on Publication had no reports to make.

REPORT OF BOARD OF COUNCILORS.

Dr. M. L. Stevens, of Asheville, made the following report for the Board of Councilors:

The individual councilors will each make a report covering the work going on in their districts, consequently a complete report by me would be simply a repetition. I would state, however, that there is energetic work being done by the councilors in every district of the State. There is a district medical society in nearly every one of the councilor districts. On the whole, I think the state of affairs for which the councilors are responsible is at least as good now as it has ever been.

There was no report made for the first district.

Second District—DR. K. P. B. BONNER, *Morehead City.*

As your councilor in the Second District, my report will be very brief. As I understand the situation in my district, the profession is better organized and the societies have fully as large a membership as at any period during the time that I have been the councilor, which is now about four years. On the 28th of May we had a meeting of the Second District Medical Society in New Bern, and while the attendance was not large, we had a

splendid meeting with a number of good papers. It is our intention to meet at some point in the district early in October and to try, if possible, to get on a par with Dr. Saliba's District Society in the Fourth District. I must confess, and I think the rest of the councilors will agree with what I have to say, that we must accord Dr. Saliba the honor of having the best District Society in the entire State, and in a way, the rest of the councilors must look upon Dr. Saliba's Society as being the ideal society. The work of a councilor is, to say the least, a grave responsibility. Upon him rests the responsibility of visiting and organizing the County Societies and the job is no little one. I feel sure that we are doing the best we can.

Third District—Dr. L. B. Evans, *Clarkton.*

I beg to say that the set of counties constituting the Third District are all organized and all have their meetings more or less regularly, some monthly, some quarterly. Each county is very well organized. Since the meeting at Morehead last year, the district has had one meeting, and I must say that it was considered by those present as the most successful medical society meeting that they had attended. A number of physicians who attended that meeting stated that they got more good out of it than they had ever gotten from a State meeting. We hope in the future to hold two district meetings each year. That is all I have to report.

Fourth District—Dr. M. M. Saliba, *Wilson.*

I have to thank Dr. Bonner for his kind words, and we are proud to say that we think we have the best district meeting in the State.

Greater interest was taken and more work was done this year by the men of the District than ever before. Since my last report a society has been organized in every county, three of which, Edgecombe, Nash, and Wilson, hold regular monthly meetings, while the others have no regular ones. I am sure it will interest you to learn that every physician in Wilson County is a member of the County Society with the exception of one who a few years ago retired from active practice. Our District Society issues a bulletin eight times a year in which, I am glad to say, the men of the district take a great interest. The bulletin has just completed its first year, and it is gratifying and encouraging to watch and measure the growth of the Society with its development and growth. Without a doubt the bulletin has been the means of inducing many physicians to take an active interest in the welfare of their profession and of attracting others to become members.

Fifth District—Dr. Peter John, *Laurinburg.*

The Fifth District covers a rather large territory, nine counties, eight societies. All of the counties, I think, are well organized and most of them have monthly meetings. At most of these meetings some subject is discussed and papers read. We have been trying to hold four district meetings a year, but this year we have held only one. I think the district is probably in better condition than it has ever been before, the organization is better. It is a little hard for us to get together for the district meeting. It is hard for all the members in some of the counties to go without its taking two days to get there and back. We expect to hold a big meeting at Montrose on July 2d. We shall be glad to see everybody who can attend, whether in the district or not.

The Sixth District did not report.

Seventh District—Dr. A. J. Crowell, *Charlotte.*

I have nothing special to report, that is, no new work undertaken in our district since last year. We have one county that is mighty lame. We organized it once, and it has an organization, but is not having any meetings. I promised to go down and talk with them again and see if we cannot get new life into that County Medical Society. I do not know what we can do. The district as a whole, I think, is in fairly good condition. I do not exactly agree with Dr. Saliba and Dr. Bonner about the best district in the State being the fourth. We think we have a pretty good district. We have two meetings a year, one in which there is reading and discussion of papers, and the other is a clinical conference. We have now our second clinic in the Seventh District and we think it has been quite a great success. We have the various hospitals throw their doors open to the physicians, and we have the operations, for it is chiefly operations in the hospitals in the mornings. In the afternoons and evenings we have the clinics in the college, principally medical, of course showing post operative cases. We think in our district this has been a very valuable part of our society work. We think the County Societies are taking more interest, and that perhaps in another year we shall have all of our County Societies very active in their work.

Eighth District—Dr. William M. Jones, *Greensboro.*

The condition in the Eighth District, consisting of eight counties, is, I consider, very fair. We have two counties in which the physicians are scattered and they have societies that meet more or less irregularly; but the other six counties have regular meetings, ranging from six to nine and twelve meetings a year. It has been my pleasure to meet the secretary or some member of the county society of each county in the district, and I have had more or less correspondence with each secretary in the district. During the month of April we arranged for the District Meeting to be held in Greensboro. The program for this meeting consisted of a two days' session meeting in conjunction with the Guilford County Medical Society. I know that it is the unanimous opinion of the men who attended this meeting that we had a most successful meeting, with excellent papers and clinical work. We began on Thursday afternoon with the scientific papers, had a meeting that night open to the public, where talks and addresses were made by a couple of local physicians and illustrated by lantern slides and an address made by Dr. C. W. Stiles. On Friday morning we had clinics upon the eye and ear, demonstration of the urethoscope, and X-ray, and operative surgery at the hospital. Then in the afternoon we had other scientific papers. There were in round numbers about a hundred physicians in attendance upon this meeting. At that time the Eighth District Medical Society was regularly formed, with the election of a president, secretary and treasurer. The Society will meet in the city of Winston at the call of the secretary early in the fall, about November.

Ninth District—Dr. D. J. Hill, *Lexington.*

The Ninth District is good in spots and possibly indifferent in spots. Now in these good spots they are so very, very good, that I might say in one sense, we do not regret the few bad spots, because it opens up still a good field for our energies. We have recently held a very successful district meeting, the

third district meeting since my incumbency in office. This last meeting was the best of all, but we hope for better things in the future.

Tenth District—Dr. M. L. Stevens, *Asheville.*

In the Tenth District conditions are steadily improving though in parts of it they are still far from ideal. Since the last meeting of the State Society, two county societies have been organized and a District Medical Society has been organized. On the whole, there is progress.

I wish to mention one thing I overlooked in my report for the Board of Councilors. I wish to state that the Board of Councilors held a meeting in Greensboro in November of last year with the president of the society, for the purpose of considering ways and means for advancing the Society's work. We had some good heart to heart talks and I think every one went away from that meeting full of enthusiasm for the work of the new year.

Dr. J. B. Whittington, *Forsyth County.*

I happened to be in Greensboro last spring and I wish to say that the counties adjoining in the Eighth District will meet in Winston-Salem in the fall, and we will give any one a hearty welcome. We are just opening up the new city hopital, the best in the State.

The report of the Secretary, Dr. John A. Ferrell, was read by him.

REPORT OF THE SECRETARY.

Mr. President and Gentlemen:

Your Secretary desires to report that during the year effort has been made to carry out the measures provided for at Morehead City, with the following results:

The Society Records:

Personal interviews, letters, and advertisements have been used in an effort to collect the missing volumes in the set of Transactions belonging to the Society, and to induce those physicians who have a more or less complete set to donate them to the State Library, or other public or semi-public libraries in the State, as historical records. The appeals have met with some response. I am glad to report that Dr. I. H. Manning, a member of your committee, states that he has obtained for the University Library a practically complete set.

In accordance with authority granted by this body, your Secretary has had printed two large leather-bound record books—one for the Secretary and one for the Treasurer—to cover the individual records of every member of the State Society dating from 1870 to 1930. Blanks are provided for the name, county, postoffice, college of graduation, year of graduation, year of license, the dates dues were remitted, and the amounts by years. The effort to secure all this data has been a tremendous undertaking, and is not yet complete. In compiling this information, it has been necessary to review the Treasurer's ledger, which dates back only to 1906; the records of the Board of Medical Examiners; and the printed Transactions of the Society. In doing this work, it has been necessary to have a card-index of all the physicians in the State, whether members or not; all the physicians licensed by examination or reciprocity; and those who, according to the Treasurer's

records, have at one time or another paid dues. These cards, numbering approximately 6,000, had to be written and then arranged, first alphabetically and then by counties. In making comparisons, it developed that approximately five hundred physicians have been paying dues as Society members who are not listed in the record of the Examining Board. Some of these—but by no means all—are physicians who secured license before the existence of the Examining Board. The number might possibly be still further reduced by inaccurate spelling of names, or incorrect initials, which makes it extremely difficult to match the names in the Treasurer's record with those in the list of the Examining Board. It appears also that a number of physicions now listed as Honorary Fellows did not pay their dues regularly for even the short period covered by the Treasurer's records. I would recommend that provision be made for completing this work, and that a committee be appointed to look into the apparent inconsistencies and make recommendations at the next meeting of the Society for such corrections as may be found practicable.

Your Secretary purchased a small card file for accommodating the three following card indices which the Society now has:

1. An alphabetical list of all the physicians in the State whose names have been obtainable, numbering nearly 2,000.

2. An alphabetical list of the 2,200 physicians to whom the Board of Examiners have granted licenses.

3. A list of physicians in the State who have paid their Society dues for 1914, and are in good standing. The latter list now numbers 1,287 doctors, who have paid their dues.

Dues have been received from 80 component societies, representing 88 counties, and 1,228 paid members. These, with 51 Honorary Fellows and 8 Honorary Members, gives a total membership for the year to date of 1,287 members.

Your Secretary would further recommend the purchase of a suitable cabinet in which the Secretary may properly keep the Society's records, ledgers, and correspondence.

Finances:

We were able by increasing the number of dues collected to increase the Society's revenue, and by using the strictest economy in expenditures, to end the year 1913 with a small sum in the Treasury and all outstanding accounts settled. The chief saving was in the matter of printing the Transactions. The total cost for printing and mailing 1,000 copies for 1912 exceeded $1,422; whereas this item for 1,200 copies in 1913 was $1,079—a reduction in the cost per volume from $1.42 to $.89: that is to say, the cost per volume was reduced 37 per cent. The specifications for the printing were prepared by an expert printer, and competitive bids were invited from fifteen reliable printing houses within and without the State, with the result that the contract has been awarded to Edwards & Broughton Printing Co., of Raleigh. The Transactions last year were delivered seventy days after the close of the meeting, and unless unforeseen obstacles arise, they will be delivered this year on the same schedule.

In an effort to keep the Society up to its fullest strength, your Secretary has addressed a postal card to something like 2,000 physicians in the State, calling their attention to the payment of dues, the annual meeting of the Society, and so on. On June 3d he sent to all the physicians in the State

2,000 tentative programs, thinking that those who were not members might be interested in looking over the plans being contemplated by those who were members, and would affiliate themselves with the Society. The final program was sent out last week to the 985 physicians who had paid their dues, and are eligible to attend this meeting.

In addition to this, several sets of letters have been addressed to the various councilors and county secretaries, with a view to having the Society's business affairs brought up to proper shape. There was such marked absence of response to these appeals that I would urge on the Society the necessity of discovering and adopting measures which will render membership in the County and State Societies more valuable to the individual physicians, and cause them to seek an opportunity to pay their dues on or before the first day of January through the regular channel, rather than permit the matter to be called to their attention from time to time by either the County or State Secretary, at a considerable expense in time and postage. It was hoped that provisions for medical defense would appeal to the Society as in a way supplying this need, and I trust that careful consideration will be given here to the desirability of adopting them, or any other measure which will make the Society valuable, and the physicians regard the payment of their Society dues in the same light as the annual premiums on life and fire insurance are regarded.

During the year certain expense statements have been rendered by councilors and members of committees. Your President and Secretary, upon conferring with the Finance Committee, concluded that expense accounts by councilors and members of committees should be made a part of the official report, and submitted for approval to the House of Delegates.

Program:

More than eighty scientific papers have been promised for this session. In addition, we have the evening exercises for Wednesday night, including the oration, the essay, and memorial exercises, and on Wednesday at noon the Conjoint Session with the State Board of Health. In addition, there will be an election of a Board of Medical Examiners. This means that the program is greatly overcrowded, and that the meeting must work regularly and rapidly to get through with the business.

Your Secretary would again urge that those secretaries of county societies who may be present come together at the proper time and place, to be agreed upon, before this session adjourns, and discuss methods for stimulating interest and activity in the county societies.

Having been called to a wider field of health work, your Secretary has moved his physical residence to Washington City. Moreover, his private duties prevent him from giving the time and thought to the Society's business he would like to see it have. For these reasons he respectfully tenders his resignation as Secretary to the Society.

As Secretary I have genuinely appreciated the honor the Society has conferred on me. Though my physical residence is moved, I shall hold my legal residence in this State, and trust I may continue an active member of this Society, attend its meetings regularly, and at all times render it any service within my power. The officers and members have done everything possible in lending me sympathetic coöperation during my two years of service. In retiring, I wish to thank them for their aid, and to especially thank the

Society for the confidence placed in me. Whether or not I have rendered the service due the Society, I have intended doing so, and have always found pleasure in the work undertaken.

Respectfully submitted,

JNO. A. FERRELL,
Secretary.

June 16, 1914.

The House of Delegates then adjourned to meet on Thursday, June 18th, at nine o'clock.

RESOLUTIONS.

DR. J. W. LONG: I move we show our appreciation of the Secretary's report and his services by accepting his report as a whole and tendering him our thanks and appreciation, by a rising vote.

This motion was amended that the report be accepted with the exception of the resignation of Dr. Ferrell. There were several seconds to the motion as amended and it was carried unanimously.

DR. J. T. J. BATTLE, GREENSBORO: I see many familiar faces here and I know all of these doctors have already missed a familiar face. I have just been informed that this gentleman is confined to his home on account of sickness. He has piloted this Society through turbulent scenes and he has fought for its interest in legislative halls and has always brought it out safely. It is hardly necessary to call that gentleman's name after this explanation. I refer to Dr. R. H. Lewis, of this city, and I move that the President of this Society appoint a committee of three to convey to Dr. Lewis our sincere sympathy in his sickness and our earnest hope that he soon may be restored to health and our deep regret that he cannot be with us today in the deliberations of this body.

This motion was seconded and unanimously carried, and a committee composed of Dr. J. T. J. Battle, Dr. J. L. Nicholson, and Dr. J. Howell Way was appointed.

DR. G. T. SIKES, Grissom: I should like to say that there is a man from Granville County who is now sick at Watts Hospital at Durham. I would like it very much if the Society would send its regrets to this man, Dr. O. W. Holloway. A committee composed of Dr. G. T. Sikes, Dr. J. P. Munroe and Dr. K. P. B. Bonner was appointed to do this.

DR. H. McK. TUCKER: As a Raleigh physician I wish to thank Dr. Battle for his motion in regard to Dr. Lewis. I also wish to give you the good news that Dr. Lewis is very much better and hopes to be out in two weeks.

Dr. J. Howell Way, of Waynesville, was recognized, and before reading the resolutions drawn up in behalf of Dr. Lewis, of Raleigh, made

the following statements: "Last evening at the session of the State Board of Health, these resolutions were presented and adopted by that body, of which Dr. Richard H. Lewis was a distinguished member. I want to suggest that the resolution be adopted and accepted by the North Carolina State Medical Society and the North Carolina State Board of Health."

RESOLUTION ADOPTED BY THE MEDICAL SOCIETY OF NORTH CAROLINA AND THE NORTH CAROLINA STATE BOARD OF HEALTH.

WHEREAS, The Medical Society of the State of North Carolina in its sixty-first regular annual session, assembled in Raleigh, N. C., June 16, 17 and 18, 1914, and the State Board of Health have learned with deep regret of the continued illness and confinement in his home in this city of our highly esteemed friend, loving brother and honored member, Doctor Richard H. Lewis, whose kindly presence, genial manner, wise counsel, continuous interest, and untiring energy in each and all of the numerous official positions so efficiently filled by him at different times during the many years of his membership and service in the Society; be it

Resolved, That the Society and the State Board of Health do hereby extend to Doctor Lewis our assurances of affectionate regard, and sympathetic interest, with the hope that he may soon be restored to health and permitted to resume the wonted activities incident to his busy and fruitful life, gratifying alike to his many friends and so valuable in character to our medical institutions and to the State at large.

J. M. PARROTT,
President Medical Society of North Carolina.
J. HOWELL WAY,
President State Board of Health of North Carolina.

Committee:
J. T. J. BATTLE,
J. HOWELL WAY,
J. L. NICHOLSON,
T. E. ANDERSON,
A. A. KENT.

This resolution was adopted.

THURSDAY, JUNE 18, 1914.

On motion of Dr. I. M. Taylor it was voted that the resignation of Dr. John A. Ferrell as Secretary of the Society be declined.

On motion of Dr. G. T. Sikes it was voted that a committee be appointed to consider increasing the salary of the Secretary.

A committee composed of Drs. S. D. Booth, D. E. Sevier and G. T. Sikes was appointed by the chairman and recommended that the salary of the Secretary be made six hundred dollars annually from date, and on motion the recommendation was adopted.

On motion it was ordered by the House of Delegates that the expenses of the Councilors who attended the Greensboro meeting be paid.

On motion of Dr. Cyrus Thompson it was voted that in the future the proceeds from the sale of exhibit space be considered a perquisite of the local entertainment committee and that this phase of the business be left entirely to the local committee.

On motion it was voted that the Secretary be instructed to purchase a large steel fire-proof case for storing and filing the property of the Society.

On motion the following report of the Committee on Nominations was adopted:

REPORT OF COMMITTEE ON NOMINATIONS.

President—Dr. L. B. McBrayer, Sanatorium.

First Vice-President—Dr. J. J. Phillips, Tarboro.

Second Vice-President—Dr. C. W. Moseley, Greensboro.

Third Vice-President—Dr. S. M. Crowell, Charlotte.

Leader of Debate—Dr. L. B. Evans, Clarkton.

Orator—Dr. J. M. Northington, Boardman.

Essayist—Dr. Mary E. Lapham, Highlands.

Delegates to American Medical Association—Dr. John A. Ferrell, Washington, D. C.; Dr. I. N. Manning, Chapel Hill.

Alternates—Dr. A. Brenizer, Charlotte; Dr. D. T. Tayloe, Washington.

Delegates to South Carolina Medical Society—Dr. A. B. Croom, Maxton; Dr. J. M. Covington, Wadesboro; Dr. W. C. Galloway, Wilmington; Dr. W. A. McPhaul, Lumberton; Dr. J. A. Anderson, McAdenville; Dr. J. T. Burrus, High Point.

Delegates to Virginia Medical Society—Dr. E. T. Dickinson, Wilson; Dr. J. A. Harrison, Elm City; Dr. Richard N. Duffy, New Bern, Dr. N. Bolton, Rich Square; Dr. Chas. O'H. Laughinghouse, Greenville.

Delegate to Association of Medical Colleges—Dr. J. W. Long, Greensboro.

Committee on Scientific Work—Dr. W. DeB. MacNider, Chapel Hill; Dr. A. S. Pendleton, Raleigh.

Committee on Public Policy and Legislation—Dr. J. N. Templeton, Cary; Dr. James M. Parrott, Kinston; Dr. G. G. Thomas, Wilmington.

Committee on Publication—Dr. E. C. Register, Charlotte; Dr. J. Howell Way, Waynesville; Dr. Wm. Allan, Charlotte.

Committee on Finance—Dr. W. W. Green, Tarboro; Dr. C. M. Van Poole, Salisbury; Dr. Oscar McMullan, Elizabeth City.

Committee on Obituaries—Dr. M. H. Fletcher, Asheville; Dr. A. W. Knox, Raleigh; Dr. E. T. Dickinson, Wilson.

Place of Next Meeting—Greensboro.

Date of Next Meeting—Third Tuesday in June, 1915.
Chairman Committee on Arrangements—Dr. J. T. J. Battle, Greensboro.

The tendered resignation of the Secretary, Dr. John A. Ferrell, of Washington, D. C., was declined.

REPORT OF COMMITTEE ON PRESIDENT'S ADDRESS.

We, your committee appointed to consider and report on the President's address, beg leave to report that we have not before heard so masterly and suggestive review of the aggressive and progressive work now being done in the State by the medical profession.

We heartily endorse the advanced position of his several recommendations. We heartily endorse and commend his suggestions as to our several State institutions, to wit, the Schools for the Deaf and Dumb, the School for the Blind, the Hospitals for the Insane, the School for the Feeble Minded and the Sanatorium for Tuberculosis. We urge that his advice be heeded, in that we of the profession not only give our most loyal support to these institutions, but that we study how we may best serve the State in educating the people how to protect themselves against the afflictions which send our unfortunates to these institutions. We must study and teach the causes of insanity, blindness, and so forth, to the end that they may be prevented.

We recommend that the Society at once act upon the suggestion that a committee on School Hygiene and Rural Sanitation be appointed to consider this subject and report its findings to the Society at its next annual meeting.

We approve his advanced position on prescription writing for alcoholic stimulants, and advise that our legislative committee be instructed to ask the next legislature to enact more stringent laws against this pernicious practice.

We commend his advanced views relative to general practitioners standing examinations at five-year intervals, as a badge of special fitness for practice, and as to requiring those who offer their services as specialists to take subsequent and special examinations showing their fitness as such. Too many are taking up special work for purely commercial reasons, without any special fitness for it.

We advise that the Society instruct its legislative committee to procure the necessary legislation for putting in operation these valuable suggestions.

A. A. Kent,
L. J. Nicholson,
J. T. J. Battle,
W. S. Rankin,
Committee.

On motion it was decided that the date of the next meeting be the third Tuesday of June, 1915.

On motion of Dr. A. A. Kent it was voted that the Morehead City resolution of Dr. J. W. Long, that the offices of orator, essayist and leader of debate be abolished, was adopted, but that the Society would hear these officers, as named in the above report of the Nominating Committee, at Greensboro. At the next meeting these offices will close and will not have to be provided for by the next nominating committee.

On motion it was voted that the Secretary and Treasurer receive and receipt for those dues paid since the receipt of the reports of the various county secretaries, but that a list of such physicians be sent to the secretaries of the county societies concerned. If any of the physicians thus paying dues are found to be not entitled to membership the matter is to be brought up in the House of Delegates and be disposed of one year hence.

On motion it was voted that all physicians now in good standing who claim to have paid dues and kept in good standing continuously during the past thirty years be placed on the honorary fellowship list provided there be found no evidence to the contrary.

On motion it was decided that the Committee on Constitution and By-Laws be continued and that a copy of their proposed report be printed in the transactions of this year.

On motion the meeting adjourned.

REPORT OF THE COMMITTEE ON CONSTITUTION AND BY-LAWS.

ORIGINAL.	PROPOSED AMENDMENTS.
ARTICLE VII.	ARTICLE VII.
SECTION 2. The time and place for holding each Annual Session shall be fixed by the House of Delegates.	SECTION 2. The time and place for holding each annual session shall be fixed by the General meeting.
ARTICLE VIII.	ARTICLE VIII.
SECTION 1. The officers of this Society shall be a President, three Vice-Presidents, a Secretary, a Treasurer and ten Councillors.	SECTION 1. The officers of this Society shall be a President, three Vice-Presidents, a Secretary and a Treasurer.
SEC. 2. The President and Vice-Presidents shall be elected for a term of one year. The Secretary, Treasurer and Councilors shall be elected for terms of three years each. All of these officers shall serve until their successors are elected and installed.	SEC. 2. The President and Vice-Presidents shall be elected for a term of one year. The Secretary and Treasurer shall be elected for terms of three years each. All of these officers shall serve until their successors are elected and installed.
SEC. 3. The officers of this Society shall be elected by ballot, a majority of the votes cast being necessary to	SEC. 3. The officers of this society shall be elected by ballot, a majority of the votes cast being necessary to

elect, by the House of Delegates on the morning of the last day of the Annual Session, but no Delegate shall be eligible to any office named in the preceding section, except that of Councilor, and no person shall be elected to any such office who is not in attendance upon the Annual Session and who has not been a member of the Society for the past three years. Any nominee for the office of President shall have been an active member of the Society for five years, including the year of his election, shall have attended two of three meetings immediately preceding his nomination, including the meeting at which he is nominated; and shall be a member in good standing at the time of his nomination.

ARTICLE IX.

SECTION 1. The seven members of the "Board of Medical Examiners of the State of North Carolina" shall be elected by ballot for a term of six years, a majority of the votes cast being necessary to a choice. The election shall be held on the second day of the annual meeting, and the balloting shall continue until the entire number is elected.

SEC. 3. The elective members of the State Board of Health, and of the State Board of Medical Examiners for Nurses, shall be elected by ballot on the second day of the session.

BY-LAWS.

CHAPTER I.

SECTION 1. All members of the component county societies shall be privileged to attend all meetings and take part in all of the proceedings of the annual sessions and shall be eligible to any office within the gift of the Society.

CHAPTER II.

SEC. 2. Special sessions of either the Society or House of Delegates shall be called by the President at his discretion, or upon petition of twenty delegates.

CHAPTER IV.

SEC. 7. It shall encourage post graduate work in medical centers, as well as home study and research, and shall endeavor to have the results of the

elect, in the general meeting on the morning of the last day of the Annual Session. No person shall be elected to any such office who is not in attendance upon the Annual Session and who has not been a member of the Society for the past three years. Any nominee for the office of President shall have been an acting member of the Society for five years, including the year of his election, shall have attended two of three meetings immediately preceding his nomination, including the meeting at which he is nominated; and shall be a member in good standing at the time of his nomination.

ARTICLE IX.

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SEC. 3. The elective members of the State Board of Health, and the State Board of Medical Examiners for Nurses, shall be elected by ballot on the last day of the session.

BY-LAWS.

CHAPTER I.

SEC. 1. All members of the component county societies shall be privileged to attend all meetings and take part in all of the proceedings of the annual sessions, and shall be eligible to any office within the gift of the Society, except those not in good standing.

CHAPTER II.

SEC. 2. Special sessions of either the Society or House of Delegates shall be called by the President at his discretion, or chairman upon petition of twenty members.

CHAPTER IV.

SEC. 7. It shall encourage post graduate work in medical centers, as well as home study and research, and shall endeavor to have the results of

same utilized and intelligently discussed in the county societies.

Sec. 13. It shall approve all memorials and resolutions issued in the name of the Society before the same shall become effective.

CHAPTER V.

Sec. 2. The House of Delegates, on the first day of the annual sessions, shall select a Committee on Nominations, consisting of ten delegates, no two of whom shall be from the same councilor district. It shall be the duty of this committee to consult with the members of the Society, and to hold one or more meetings, at which the best interests of the Society and of the profession of the State for the ensuing year shall be carefully considered. The committee shall report the result of its deliberations to the House of Delegates in the shape of a ticket containing the names of one member for the office of President, and one member for each of the other offices to be filled at the annual session.

Sec. 3. The report of the Nominating Committee and the election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the morning of the last day of the general session.

CHAPTER VI.

Section 1. The President shall preside at all meetings of the Society and of the House of Delegates; shall appoint all committees not otherwise provided for; shall deliver an annual address at such time as may be arranged; shall give a deciding vote in case of a tie and shall perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office, and, as far as practicable, shall visit by appointment the various sections of the State and assist the councilors in building up the county societies, and in making their work more practical and useful.

Sec. 2. The Vice-Presidents shall assist the President in the discharge of his duties. In the event of his death, resignation or removal, the Council shall select one of the Vice-Presidents to succeed him.

Sec. 4. The Secretary, acting with

the same utilized and intelligently discussed in the county societies.

Sec. 13. Omitted.

CHAPTER V.

Sec. 2. The House of Delegates, on the first day of the annual sessions, shall select a Committee on Nominations, consisting of ten delegates, no two of whom shall be from the same councilor district. It shall be the duty of this committee to consult with the members of the Society and to hold one or more meetings, at which the best interest of the Society and of the profession of the State for the ensuing year shall be carefully considered. The committee shall report the result of its deliberations to the House of Delegates in the shape of a ticket with one or more names for each of the offices to be filled at that annual session.

Sec. 3. The report of the Nominating Committee and the election of the officers shall be the order of business before the general session on the morning of the last day of the meeting.

CHAPTER VI.

Sec. 1. The President shall preside at all meetings of the Society; shall appoint all committees not otherwise provided for, shall deliver an annual address at such time as may be arranged; shall give a deciding vote in case of a tie, and shall perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the state during his term of office, and as far as practicable shall assist the county and district societies in their uplift and usefulness.

Sec. 2. The Vice-Presidents shall assist the President in the discharge of his duties. In the event of his death, resignation or removal, one of them, in numerical order, shall succeed him.

Sec. 4. The Secretary, acting with the Committee on Scientific Work, shall prepare and issue the programs for and attend all meetings of the Society, and he shall keep minutes

the Committee on Scientific Work, shall prepare and issue the programs for and attend all meetings of the Society, and of the House of Delegates, and he shall keep minutes of their respective proceedings in separate record books. He shall be custodian of all record books and papers belonging to the Society except such as properly belong to the Treasurer, and shall keep account of and promptly turn over to the Treasurer all funds of the Society which come into his hands. He shall provide for the registration of the members and delegates at the annual sessions. He shall keep a card index register of all the legal practitioners of the State by counties, noting on each his status in relation to his county society. In so far as it is in his power, he shall use the printed matter, correspondence and influence of his office to aid the councilors in the organization and improvement of the county societies, and in the extension of the power and usefulness of this Society. He shall conduct the official correspondence, notifying members of meetings, officers of their election, and committees of their appointment and duties. He shall act as chairman of the Committees on Scientific Work and on Publication. He shall employ such assistants as may be ordered by the Council or the House of Delegates. He shall annually make a report of his doings to the House of Delegates.

In order that the Secretary may be enabled to give that amount of time to his duties which will permit of his becoming proficient, it is desirable that he should receive some compensation. The amount of his salary shall be fixed by the House of Delegates.

CHAPTER IX.

SEC. 2. The Committee on Scientific Work shall consist of three members, of which the Secretary shall be a member and Chairman, and shall determine the character and scope of the scientific proceedings of the Society for each session, subject to the instructions of the House of Delegates or of the Society, or to the provisions of the Constitution and By-laws. Thirty days previous to each annual session it shall prepare and issue a program announcing the order in which papers, discussions of the transactions. He shall be custodian of all record books and papers belonging to the society, except such as properly belong to the Treasurer, and shall keep account of and promptly turn over to the Treasurer, all funds of the Society which come into his hands. He shall provide for the registration of the members and delegates at the annual sessions. He shall keep a card-index register of all the legal practitioners of the State by counties, noting on each his status in relation to his county society. In so far as it is in his power, he shall use the printed matter, correspondence and influence of his office to aid the councilors in the organization and improvement of the county societies, and in the extension of the power and usefulness of this Society. He shall conduct the official correspondence, notifying members of meetings, officers of their election, and committees of their appointment and duties. He shall act as chairman of the Committees on Scientific work and on Publication. He shall employ such assistants as may be ordered by the Council or the House of Delegates. The compensation for his services shall be fixed by the House of Delegates.

CHAPTER IX.

SEC. 2. The Committee on Scientific Work shall consist of three members, of which the Secretary shall be a member and Chairman, and shall determine the character and scope of the scientific proceedings of the Society for each session, subject to the instructions of the Society, or to the provisions of the Constitution and By-laws. Thirty days previous to each annual session it shall prepare and issue a program announcing the order in which papers, discussions and other business shall be pre-

and other business shall be presented, which shall be adhered to by the Society as nearly as practicable.

SEC. 5. The Committee on Nominations shall be appointed and perform its duties in accordance with the provisions of chapter 5, section 2, of these By-laws. They shall also nominate an Orator, an Essayist, a Leader of Debate, a Committee on Scientific Work, a Committee on Public Policy and Legislation, a Committee on Publication, a Committee on Obituaries, a Committee on Finance, one member of the Committee of Arrangements, Delegates to the American Medical Association, the Virginia Medical Society, the South Carolina Medical Association, and to such other bodies as the Society may determine. They shall also each third year nominate a Board of ten Councilors.

CHAPTER XVI.

These By-laws may be amended at any annual session by a majority vote of all the delegates present at that session, after the amendment has laid upon the table for one day.

sented, which shall be adhered to by the Society as nearly as practicable.

SEC. 5. The Committee on Nominations shall be elected by Districts and perform its duties in accordance with the provisions of Chapter 5, Section 2, of these By-laws. They shall nominate a Leader of Debate, a Committee on Scientific Work, a Committee on Public Policy and Legislation, a Committee on Publication, a Committee on Obituaries, a Committee on Finance; one member of the Committee of Arrangements, Delegates to the American Medical Association, the Virginia Medical Society, the South Carolina Medical Association and to such other bodies as the Society may determine. They shall also each third year nominate a Board of ten Councilors.

CHAPTER XVI.

These By-laws may be amended at any annual session by a majority vote of all the members present at that session, after the amendment has laid upon the table for one day.

A. A. KENT,
G. T. SIKES,
F. H. HOLMES,
Committee.

Conjoint Session State Board of Health with North Carolina Medical Society

WEDNESDAY, JUNE 17TH, AT 12 O'CLOCK.

The meeting was called to order by Dr. J. Howell Way, Waynesville, President of the State Board of Health.

DR. WAY: *Gentlemen of the Conjoint Session, and Fellow Members of the Society:* I thank our distinguished member for his courteous introduction. I appreciate it. I do not deserve it. Without further ceremony, I will just remind you that the State Board of Health of North Carolina desires to be called a working order instead of a talking order. I, therefore, called the Conjoint Session together and take great pleasure in introducing to you Dr. W. S. Rankin, Secretary of the North Carolina State Board of Health, of Raleigh.

Dr. W. S. Rankin presented the following as Secretary of the State Board of Health, including all departments under it:

ANNUAL REPORT OF THE SECRETARY OF THE NORTH CAROLINA STATE BOARD OF HEALTH.

(See Chapter 62, Section 8, Laws of 1911.)

W. S. RANKIN, M.D., RALEIGH.

Mr. President, Members of the State Board of Health, and Fellow Members of the North Carolina Medical Society:

CONFIDENCE OF STATE IN THE PROFESSION.

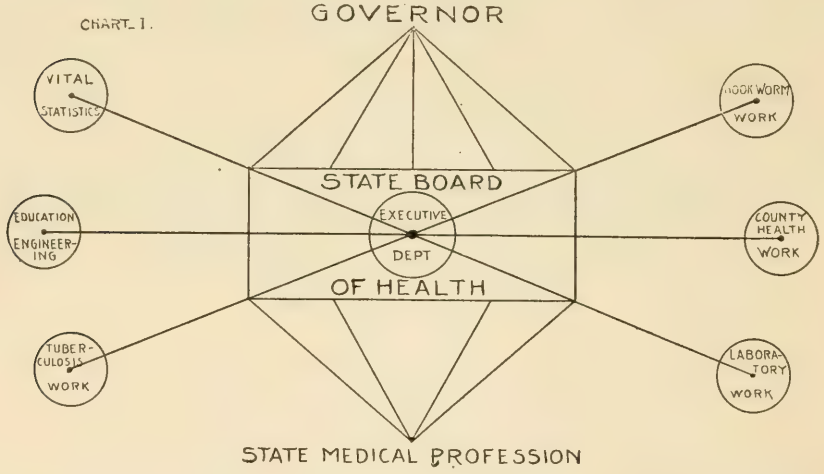
I am required by the people of this State to render to you at this time an account of the work of the State Board of Health for the past year. And why, may you ask, should the people of this State require that the activities of a branch of their government be brought to your attention and passed upon by you? This requirement is one of the highest compliments that the State could pay a profession, for it is the official expression of the confidence of North Carolina in both the sincerity and the wisdom of your interest in the conservation of the health and life of her people. Hear me then, brethren, not to be entertained, but to be worthy of your State's confidence.

GROWTH AND DIFFERENTIATION OF STATE HEALTH WORK.

One of the laws of growth is that which keeps the proportion between mass and surface constant through differentiation and division of labor. An institution that grows in accordance with the wisdom of this natural law will differentiate its work into departments or bureaus as the

demand and capacity for work increases. The last year will go down in the history of the Board as marking the period of its greatest differentiation and organization. During this time four new bureaus or departments have been established, making, with the two bureaus already in existence, six departments or bureaus. The departments or bureaus of the Board, in the chronological order of their establishment, are the State Laboratory of Hygiene, the Bureau for the Eradication of Hookworm Disease, the Bureau of Engineering and Education, the Bureau of County Health Work, the Bureau of Vital Statistics, and the Sanatorium and Bureau of Tuberculosis.

The plan of organization of the State Board of Health is indicated on the chart.



The Board is seen to be a body in touch on the one hand with the Governor through five lines that signify his five appointees on the Board; and in touch on the other hand with the State Medical Society through four lines that signify the four members of the Board elected by this Society. Your Board of Health, therefore, represents jointly the State Government and the State profession, and stands as an official recognition of the natural partnership between society and the medical profession in the conservation of human life.

Under the Board is an executive office through which the Board is in touch with all divisions of its work. Note that each department or bureau is independent of all other bureaus. In placing all the bureaus on the same plane, the stimulus of individuality and the advantages of specialization are preserved to each bureau, while the symmetry of the Board's activities is maintained through the connection of all the bureaus or departments with the executive office.

I shall now touch briefly upon the work of each bureau or department during the past year.

THE STATE LABORATORY OF HYGIENE.

The two charts show the work and the growth of the Laboratory of Hygiene during the past five years. In preparing these charts a classification of the work into the regular work of the Laboratory and into the irregular and new work of the Laboratory was deemed advisable for the sake of clearness.

The first chart shows the different kinds of work that the Laboratory has pursued uninterruptedly for the last five years. Please note especially the following interesting facts:

REGULAR WORK OF THE STATE LABORATORY OF HYGIENE FOR LAST FIVE YEARS.

Years	Appropriation	Water	Sputa	Widals	Diphtheria	Rabies	Pasteurs	Malaria	Urine	Gonococci	Pathological	Miscellaneous	Totals	Growth
9-10	$ 6,000	1,680	516	264	377	148	158	69	92	34	88	25	3,451	66%
10-11	6,000	1,920	771	460	364	159	165	119	58	52	39	20	4,127	16.3%
11-12	8 00	2,449	924	732	547	199	195	132	92	48	38	41	5,397	23.5%
12-13	8,500	2,183	1,091	790	660	298	259	196	83	78	39	28	5,705	5.4%
13-14	13,000	2,988	1,473	1,094	593	371	231	292	133	92	28	24	7,319	22%
Totals	$ 42,000	11,220	4,775	3,340	2,541	1,175	1,008	808	458	304	232	138	25,999	133.2
Averages	$ 8,400	2,244	955	668	508.2	235	201.6	161.6	91.6	60.8	46.4	27.6	5,199.8	26.64

(*a*) A continuous growth during the last five years in sputa, Widal, rabies and malarial examinations.

(*b*) A marked growth during the last five years, with slight annual fluctuations, in water, diphtheria, urine, gonococci, miscellaneous and pathological examinations.

(*c*) That the last year's work was the largest year's work in the history of the Laboratory.

(*d*) That there has been an average annual gain or growth in the Laboratory work for the last five years of 26.6 per cent.

(*e*) That during the last five years the Laboratory work has more than doubled.

IRREGULAR AND NEW WORK OF THE STATE LABORATORY OF HYGIENE FOR LAST FIVE YEARS.

Years	Stool Examinations	Distribution of Antitoxin	Distribution of Typhoid Vaccine
9–10	678	... Units	Immunizations.
10–11	22,865	... Units	... estimated.
11–12	9,581	10,627,000 Units	... estimated.
12–13	7,285	12,995,000 Units	... estimated.
13–14	1,821	9,254,000 Units	10,000 estimated.

The second chart shows the irregular and new work of the laboratory during the last five years. The falling off in stool examinations in 1910 and 1911 was due to the Rockefeller Sanitary Commission having the stool examinations made in the field by the field directors instead of in the Laboratory. This chart also shows the amount of antitoxin distributed by the Laboratory during the last three years. The amount of antitoxin distributed by the Laboratory does not by any means represent the value of this feature of its work. As soon as the State began to supply an antitoxin, guaranteed by the United States Government as reliable, at practically one-fourth the original retail price, the various manufacturers of antitoxin immediately cut the retail price of their antitoxin to meet the State's competition, and it is, therefore, no longer necessary for a citizen to buy State antitoxin to get a reliable and reasonably cheap antitoxin.

Within the last year the Laboratory has begun a new work—the preparation and distribution of free typhoid vaccine. This new work is capable of having a greater influence on the State's death rates than any other phase of the Laboratory work, with the possible exception of

water analysis. The amount of vaccine distributed during the last seven months was sufficient to immunize about ten thousand persons against typhoid fever.

The Laboratory, as you all know, is under the direction of Dr. C. A. Shore.

THE BUREAU OF HOOKWORM ERADICATION.

Nearly a year ago, Dr. John A. Ferrell, one of the ablest health officers in this country, was called from the Bureau of Hookworm Disease, which he had founded, to very responsible duties in the central offices of the Rockefeller Sanitary Commission at Washington. Dr. C. L. Pridgen succeeded Dr. Ferrell as State Director of the work for the eradication of hookworm disease. Dr. Pridgen resigned in May of this year to take up private practice, and Dr. W. P. Jacocks, utility man of the Commission, is temporarily filling the vacancy created by Dr. Pridgen's resignation. The work of the Rockefeller Commission, as shown by the official reports of the Commission, is indicated on the chart.

HOOKWORM WORK.

	1910	1911	1912	1913
Examined	7,949	37,328	135,867	104,607
Treated	8,000	45,881	57,991	54,059

A hookworm campaign has been carried on in ninety-eight counties of the State, is being carried on in the ninety-ninth, and has been provided for in Ashe, the last county to vote funds for this work. Within a few weeks, the entire State will have been covered.

Second campaigns have been held in seven counties, and the results of the second campaigns have fallen short of expectations. A comparison of the results of the first and second campaigns in these seven counties show that during the first campaign, as compared with the second campaign, the number of people examined in the average county was 3,666 as against 801, and the number treated 1,338 as against 249. The cost of treatment per case during the second campaign was something over $2.00. The Commission is somewhat at a loss to understand the falling off of the work in the second campaign as compared with the first. The following explanations have been suggested:

(*a*) Indifference, due to loss of novelty.

(b) Unpleasant effect of salts and thymol.

(*c*) Persistent skepticism.

The disappointing results of the second campaign, coupled with the high cost per case treatment, made it seem advisable to look for a new method of attack. The new method adopted consists in selecting a community of from twenty to thirty square miles, with a population of from twelve to fifteen hundred people, and attempting the complete eradication of hookworm disease from such community through the administration of thymol to all infected people and the construction of 75 per cent grade privies at all homes.

BUREAU OF EDUCATION AND ENGINEERING.

This is the educational agency of the Board, and the bureau to which all engineering problems are referred. The Bureau is under the direction of Mr. Warren H. Booker. Its work during the past year has consisted in:

(*a*) Preparation, publication and distribution of a forty thousand monthly edition of the BULLETIN to the leading citizens of the State.

(*b*) On special request of interested citizens and officials, the distribution of about one million pieces—pamphlets or leaflets—of health literature.

(*c*) Of mailing letters from the Governor of the State and also from the Board of Health, together with a pamphlet on the care of babies, to each mother whose baby's birth is registered in the Bureau of Vital Statistics.

(*d*) Supplying the newspapers of the State with regular, non-technical, popular weekly newspaper articles on health subjects.

(*e*) Giving a health exhibit in connection with a baby contest at the State Fair, which, according to newspaper reports, was one of the principal features of the Fair and of considerable educational value.

(f) Giving advice or supplying assistance to thirty-three cities and towns for installing or altering their public water supplies or sewage disposal plants, and in advising a number of individuals about sewerage for their homes.

(*g*) Passing upon the quarterly reports of the sanitary conditions of the watersheds of all the surface water supplies of the State, in connection with the Laboratory's findings showing the chemical and bacteriological conditions of the water, and in calling the attention of the proper State and local authorities to any danger indicated through such reports and findings.

BUREAU OF COUNTY HEALTH WORK.

Eleven counties in North Carolina, to wit, Buncombe, Columbus, Durham, Forsyth, Guilford, Johnston, Nash, New Hanover, Robeson,

Rockingham and Sampson, employ whole-time county health officers. While there are several states employing more whole-time health officers than North Carolina, our State leads the states of the Union in having the largest number of whole-time county health officers.

The county health problem offers at once greater difficulties and greater possibilities than any other health problem. The difficulties are worthy of the patience of Wood, the diplomacy of Lewis, and the persistence of Ferrell. Unlike any other State health policy, unlike the laboratory policy, the hookworm policy, the educational policy, the engineering policy, the vital statistics policy and the tuberculosis policy, all of which are under the sole jurisdiction of the State, the county health policy is under the double government of the State and county, a divided jurisdiction. Along the hazy boundary between State and county jurisdiction lies the danger zone to the full development of county health work. If the State does not go as far as it can in helping the county, the best possible results are not obtained; if the State goes too far, the county resents it. The most fundamental principle of our government, that of local self-government, is involved in handling the county health problem.

In accordance with the fundamental purposes of the Board of Health, a Bureau of County Health Work has been established. The work of this Bureau is:

(*a*) To assist interested individuals and organizations in county campaigns for whole-time health officers.

(*b*) To prepare and furnish health literature, placards, pamphlets and multigraphed letters to county health officers.

(*c*) To attempt to correlate, systematize and standardize the work of county health officers.

This Bureau is under the direction of Dr. Platt W. Covington.

THE REPORT OF THE BUREAU OF VITAL STATISTICS.

The State-wide vital statistics law went into effect July 1, 1913. This law is known to the registration officials of the entire country as the model vital statistics law. It expresses the combined registration experience of the country, as interpreted by a committee representing the Bureau of the Census of the National Government, the American Medical Association, the American Bar Association, and the American Public Health Association. The law is revised from time to time to meet every decision of supreme courts affecting the collection of statistics. This model law, with slight modifications to adapt it to individual states, has been adopted by practically every state that has been admitted to the registration area of the Union during the last ten years.

From July to December, 1913, five months, the work of the Bureau consisted in organizing itself, in securing the appointment of 1,400 local registrars by the chairmen of the boards of county commissioners, in preparing the various blank forms and literature necessary in the execution of the act, and in securing and listing alphabetically all the doctors, undertakers, midwives, local registrars and others concerned in the proper enforcement of the law.

When one considers that state registration depends upon the intelligent, prompt, and cordial coöperation of 1,400 local registrars, 1,700 doctors, 1,300 midwives, and 700 undertakers; and consists in securing a total of 11,000 birth and death certificates each month, or 130,000 birth and death certificates each year, he can readily understand that satisfactory registration can not be obtained in a day, a month or several months. Mississippi, with one of the best registrars in the United States, has been under the model law for two years, and is now only recording about one-half of her actual death rate, that is, about ten deaths per 1,000 of her population. Virginia, under registration for the past eighteen months, is recording a death rate of only thirteen and a fraction per thousand, far from complete, as compared with the average death rate for the United States and southern cities.

The Bureau of Vital Statistics, under the direction of Dr. J. R. Gordon, who is appreciated by both profession and public for his fine service to the State during the last ten years in the General Assembly, has made an exceptional record. As proof of this statement, note the rapid and steady progress of the registration work, as indicated by the total number of certificates received during the last four months:

February	4,484
March	7,131
April	8,261
May	9,481

Please note on the following chart showing birth registration that twenty-four counties have, for the first four months of the registration period, made practically complete returns. Note, too, the place of your county on the chart. The thoroughness of the birth registration for these counties can be appreciated by comparing their rates with the average birth rate per thousand for the United States, which is 26.6 per 1,000 population. Taking the returns for last month instead of the average for the last four months, sixty counties show complete birth registration.

BIRTHS.

County	Rate	County	Rate
Transylvania	39.4	Wilkes	21.9
Yancey	35.7	Mecklenburg	21.8
Clay	35.1	Rockingham	21.7
Stanly	33.4	Cumberland	21.2
Perquimans	32.7	Granville	21.1
Watauga	32.1	Chatham	20.9
Henderson	31.5	Buncombe	20.6
Alleghany	30.9	Lee	20.6
Ashe	30.6	Tyrrell	20.4
Warren	29.8	Edgecombe	20.3
Caldwell	29.5	Caswell	20.2
Iredell	29.5	Halifax	20.2
Gaston	29.4	Davie	20.
Swain	28.8	Beaufort	19.7
Haywood	28.8	Franklin	19.6
New Hanover	28.5	Chowan	19.5
Cleveland	28.1	Columbus	19.1
Cherokee	27.9	Hyde	18.6
Cabarrus	27.4	Stokes	18.6
Brunswick	26.7	Wayne	18.4
Anson	26.3	Camden	18.
Martin	26.2	Duplin	18.
Orange	26.2	Alamance	17.9
Randolph	26.1	Hertford	17.8
McDowell	25.9	Moore	17.1
Dare	25.8	Harnett	16.9
Montgomery	25.8	Alexander	16.5
Johnston	25.6	Graham	16.1
Person	25.2	Gates	15.4
Pamlico	24.9	Bladen	15.1
Forsyth	24.4	Polk	15.
Wake	24.4	Onslow	14.9
Catawba	24.3	Rutherford	14.9
Avery	24.3	Scotland	14.6
Davidson	24.1	Pender	14.3
Guilford	24.	Craven	14.1
Mitchell	23.9	Washington	13.9
Durham	23.5	Wilson	13.9
Vance	23.5	Jackson	13.6
Madison	23.3	Richmond	12.9
Union	23.2	Greene	12.5
Macon	23.	Pitt	12.
Yadkin	23.	Nash	10.8
Rowan	22.8	Robeson	10.8
Sampson	22.7	Lenoir	10.4
Carteret	22.5	Currituck	8.2
Burke	22.3	Hoke	8.2
Surry	22.2	Northampton	8.1
Pasquotank	22.2	Jones	7.3
Lincoln	22.	Bertie	5.8

Note on the following chart showing death rates that twenty-one counties have the average or more than the average United States rate of fifteen per 1,000 for the last four months. Taking the returns of last month, thirty-one counties registered more than the average death rate.

Please scrutinize these charts and tell the chairman of your board of county commissioners and the editor of your county papers, when you go back home, where you found your county in the registration work of the State—toward the top or toward the bottom of the list.

DEATHS.

County	Rate	County	Rate
Cleveland	28.1	Stokes	10.9
New Hanover	26.7	Surry	10.8
Beaufort	24.	Pitt	10.7
Forsyth	22.	Polk	10.5
Vance	21.8	Caldwell	10.4
Henderson	21.7	Yancey	10.2
Guilford	19.2	Dare	10.1
Columbus	19.2	Rockingham	10.
Buncombe	17.6	Harnett	10.
Halifax	17.6	Catawba	10.
Durham	17.6	Brunswick	10.
Craven	17.3	Anson	10.
Franklin	17.	Granville	9.9
Mecklenburg	17.	Moore	9.8
Pasquotank	16.9	Ashe	9.7
Alamance	16.9	Lincoln	9.7
Warren	16.8	Tyrrell	9.6
Edgecombe	16.7	Haywood	9.5
Wake	15.6	Pamlico	9.3
Lee	15.2	Watauga	9.2
Alexander	15.	Lenoir	9.2
Wayne	14.9	Union	9.1
Cabarrus	14.8	Swain	9.
Gaston	14.3	Rutherford	8.9
Washington	14.2	Macon	8.8
Transylvania	14.1	Duplin	8.6
Iredell	13.9	Cherokee	8.5
Wilson	13.7	Caswell	8.2
Orange	13.6	Currituck	8.2
Alleghany	13.5	Pender	8.
Randolph	13.3	Bladen	7.8
Cumberland	13.1	Greene	7.8
Martin	13.1	Wilkes	7.7
Davidson	13.	Yadkin	7.4
Clay	12.8	Onslow	7.3
Burke	12.7	McDowell	7.2
Chatham	12.6	Richmond	7.1
Perquimans	12.5	Scotland	7.
Rowan	12.4	Northampton	6.8
Montgomery	12.4	Madison	6.6
Chowan	12.2	Mitchell	6.3
Hertford	12.1	Robeson	6.
Carteret	11.9	Gates	6.
Davie	11.9	Camden	6.
Johnston	11.8	Bertie	5.5
Stanly	11.5	Hoke	5.4
Person	11.3	Jackson	5.3
Nash	11.3	Avery	4.
Hyde	11.	Graham	2.4
Sampson	11.	Jones	2.

This is most gratifying progress. To get it, the Bureau has mailed since the first of February, when Dr. Gordon took charge, 6,114 personal letters, 26,688 multigraphed letters, and 15,766 provisional certificates, and has sent 1,828 packages of supplies to undertakers, physicians and registration officials.

This amount of work, turned out in so short a time by an untried force of workers engaged in a new field, has been impossible without a few mistakes. The faster you drive a machine the greater the liability to accident; the harder you drive a force of workers, the greater the liability to mistakes. To me the saying of Mr. Roosevelt, to wit, "The man who never makes a mistake never does anything," often brings comfort. Some little friction between those in the statistical work in the central office and those in the statistical work in the field, the doctors, undertakers and local registrars, has been inevitable. Sometimes the central office has been at fault; sometimes those in the field have been at fault. The central office, in sending out circulars to delinquent registrars, doctors and undertakers, has in several instances included in the list of those to whom the letters were addressed registrars, doctors and undertakers that should not have received such letters. We are sorry for this. As the work becomes better organized and the force of workers more experienced, these mistakes will be eliminated. In the meantime, we beg your patience, and we are sincerely appreciative of the praiseworthy coöperation of all those in the field concerned in this work, and most especially do we appreciate the coöperation of the medical profession, which is so evident in the very satisfactory birth registration, for which the profession is primarily responsible.

THE BUREAU OF TUBERCULOSIS, INCLUDING THE SANATORIUM.

North Carolina has a perfectly definite, clear-cut State policy for handling the problem of tuberculosis. The reason for adopting such a policy is that tuberculosis stands apart from all other problems of a health department, in that it causes one-fourth of all preventable deaths, and therefore furnishes one-fourth of the total opportunity of a board of health to conserve human life.

The first consideration underlying the State tuberculosis policy is that the tuberculosis problem in bulk, undivided, is bigger and heavier than the State government can carry. The simplest calculation will make this statement evident. There are from 15,000 to 18,000 cases of active tuberculosis in North Carolina; from 7,000 to 10,000 of these are white and at least 2,000 of the 7,000 are unable to procure the proper treatment. It costs, according to reports from the sanatoria

of the United States, $1.66 a day to care properly for a case of tuberculosis, but in order to be conservative in our estimate, let us say that in taking care of as many as 2,000 cases, the cost could be reduced to $1.00 per capita per diem. Then it would cost the State to care for her 2,000 needy consumptives $2,000 per diem, or $730,000 per annum, which is about one-fourth the total revenue of our State government.

The second consideration underlying the State tuberculosis policy is that a burden that can not be carried in bulk, undivided, can be carried when it is divided and apportioned. The tuberculosis burden, too heavy for the State by itself, can be divided and apportioned to the various political organizations (counties, cities and municipalities), and to the industrial, social, fraternal and religious organizations, so that it can be handled easily and effectively. This apportionment will be made by the Bureau of Tuberculosis somewhat as follows:

(*a*) To the State the task of furnishing shelter, grounds and properly constructed buildings, and expert attendants, physicians and nurses, to care for her consumptive children, a task involving an expenditure say of $65,000 or $75,000 a year.

(*b*) To the county the task of endowing from one to five beds at a cost of from $365 to $1,800 a year for the use of worthy incipient tuberculous citizens of the county assigned to the Sanatorium by either the county board of health or county board of commissioners. But for the absence of a law permitting the counties to do this, which law will be enacted by the next General Assembly, several counties would already be looking after their needy and worthy tuberculous subjects in this way.

(*c*) To the large corporations and manufacturing plants of the State the privilege of erecting and endowing cottages on the State grounds for the use of their tuberculous employees. This will be the least burdensome and most effective way through which industrial organizations can care for this health problem. Already one of our most spirited and largest corporations is seriously considering taking this step.

(*d*) To the fraternal orders, the privilege of endowing beds in the Sanatorium for the use of their members. Already the Masons have appropriated $500 for this purpose and have appointed a committee to consider and present to the Grand Lodge a plan of permanent endowment of beds for consumptive Masons. The Odd Fellows have followed the good example of the Masons and have already appropriated $450 for the care of an orphan child.

(*e*) To civic leagues, social service clubs, and anti-tuberculosis societies, which will be organized under the Bureau for Tuberculosis, the

privilege of assisting the needy and worthy consumptives in their communities to secure treatment in the Sanatorium. Already several social clubs have sent patients to the Sanatorium.

(*f*) To individual churches and church organizations the privilege of endowing beds in the Sanatorium for their members and the nondescript who is down and out on the road between Jerusalem and Jericho, and whom the priest and Levite of the modern church must not pass by.

The third consideration underlying the State policy is that any attempt at the effective management of the tuberculosis problem must make prevention its aim and cure an incident. It may be an open question whether sanatoria as curative agencies justify public expenditures; it is not an open question whether sanatoria as preventive agencies justify public expenditures. The person admitted to the Sanatorium may or may not get well, but the family from which he is separated are less liable to contribute other victims to the disease. The Sanatorium, then, is an agency of prevention that encourages the removal of infected from uninfected members of families and households. In this way the Sanatorium is an agency of prevention primarily, of cure secondarily. Again, the Sanatorium becomes a preventive agency when its patient, unimproved, improved, or cured, goes back home. Such a patient has been impressed with his or her moral responsibility for the safety of his or her associates, and has learned the sanitary conditions under which such moral responsibility to others may be borne conveniently. These patients become missionaries in their communities, telling and demonstrating to those not so fortunate as to have had sanatorium training the importance and means of living safely with their families.

While the Sanatorium will correspond, as above indicated, to a training school, to a central university for teaching our tuberculous population how to live and let live, the policy that we have adopted contemplates in a short time enforcing the law requiring that all cases of tuberculosis shall be reported to the Bureau of Tuberculosis, which will be established at the Sanatorium, and that each reported case, some fifteen to eighteen thousand cases in North Carolina in all, shall be matriculated as a member of a correspondence school and taught through intelligently sympathetic, unofficious letters, first, the way to prevent infecting their homes, and second, the best means of getting well.

The State Board of Health could give the public no surer guarantee of their determination and their ability to carry out effectively the above policy than the man, Dr. L. B. McBrayer, who at a great financial sacrifice to himself has consented to do this work.

Dr. Albert Anderson, Raleigh: I think that this report ought to have the notice of this Society, first, because of the work that has been

done by the State Board of Health, and, second, because it is the most encouraging report I have ever listened to. I move that the report be received with our thanks and best wishes.

This motion was carried and the report was adopted.

Dr. J. T. Sikes, of Grissom: It has been a custom for a number of years to hear the report of the State Board of Health, but the report made today is such a fine field of work and so important that I can but feel that every doctor present and every citizen in North Carolina should be proud of the work of the State Board of Health. I am exceedingly proud to accept it and feel that so much is being done for the health and preservation of the people.

Dr. J. Howell Way, President: Is there further discussion?

Dr. W. S. Rankin: Gentlemen, I wish to say that I deeply appreciate your action in regard to my report, and that it is appreciated by all the men who are employed in the State health work. The work now requires something like forty or fifty men, who are all equally appreciative of the way you feel about it.

Dr. J. Howell Way: There being no further discussion, and official reports to be presented, I would now like to offer the opportunity to any member of the Society to discuss the health work of North Carolina. I hear nothing, but I do not take it that this silence should be recognized. I hope that each member present will feel free to discuss each paper that is read. Is there anything further to be brought to the attention of the Conjoint Session? If not, the Conjoint Session is adjourned.

REPORT OF THE

Board of Medical Examiners

OF THE

STATE OF NORTH CAROLINA

ANNUAL SESSION

Raleigh, North Carolina, June 9, 1914

There were

118 registrations for examinations.
37 failed.
1 obtained limited license.
80 passed a successful examination.
26 were granted license by reciprocity.

BENJ. K. HAYS, M.D., *Sec.*,
Oxford, N. C.

REQUIREMENTS FOR ENTRANCE TO EXAMINATION FOR MEDICAL LICENSE.

An applicant for license to practice medicine in North Carolina must appear before the Board of Medical Examiners in regular session and present a certificate of good moral character, attested by two persons known to the Board, a diploma from a medical college in good standing, or a license from some other State, and must deposit fifteen dollars with Secretary of the Board. He will then be examined upon the following branches of medicine: Anatomy, Physiology, Surgery, Pathology, Medical Hygiene, Chemistry, Pharmacy, Materia Medica, Therapeutics, Obstetrics, Diseases of Children and the Practice of Medicine. The examinations are written, oral and practical combined.

He must make an average of eighty per cent upon all the branches, and he must not fall below thirty-five per cent upon any one branch.

Applicants who are not bona fide citizens of North Carolina must satisfy the Board that they have an academic education equal to the entrance requirements of the University of North Carolina, and after 1917 this will be required of all persons appearing before the Board.

TEMPORARY LICENSE.

An applicant for temporary license must appear before two members of the Board of Medical Examiners and present a certificate of good moral character, a diploma from a medical college in good standing, and must pay a fee of five dollars. He must then stand a satisfactory oral examination.

A temporary license continues in force only until the next regular meeting of the Board, and is not granted more than once to the same applicant.

Applicants for temporary license may call upon any two members of the Board at their homes at any time in the year, selecting the two most accessible.

Requirements for Reciprocity.

1. Reciprocity is granted only to men of known reputation and ability. Unless the applicant has had five years experience in successful practice in the state in which he then resides, or two years of successful hospital experience, or has filled position of medical trust accounted by the Board as the equal of these, and unless he is a graduate of a high class medical college and possesses a good preliminary education, his application will not be considered. The burden of proof is upon the applicant to show what his attainments are.

2. He must not have failed before the North Carolina Board.

3. He must present himself in person before the North Carolina Board at its regular session. To this rule no exception is ever made. He must then pay a fee of fifty dollars.

4. He must fill out a blank application in regard to his moral character, educational attainments, identity, etc., and file the same with the Secretary at least thirty days before the meeting of the Board. (Blank applications may be obtained from the Secretary upon request.)

5. Reciprocity will be granted to physicians who have been admitted by examination to the United States Public Health and Marine-Hospital Service, the United States Navy or Army, and have been continuously in service, or have received honorable discharge, and have been in continuous successful practice to the date of application.

In regard to the matter of reciprocity, the State of North Carolina regards the qualifications of the applicant rather than the State from which he comes. In every case it is necessary that the applicant appear in person before the Board of Medical Examiners in regular session, and by this personal interview convince the members of the Board that he is a man of intelligence, sobriety, and high personal character. For this reason it is impossible to make a definite promise of reciprocity to any man until he has appeared before the Board.

The applicant must also produce papers showing that he has a good preliminary education, is a graduate of a high-grade medical college, and that he has been successful in his medical undertakings since graduation. In addition to the application blank, the applicant must furnish abundant evidence that every statement contained thereon is true. That is, when hospital experience is claimed, it must be accompanied by letters from the proper authorities, showing the time of such service, and certifying that this service was satisfactory. The same requirements are made in regard to other positions of medical trust.

Reciprocal relations have been established with Louisiana, Indiana and Minnesota on a basis of preliminary education and college rating.

With Maryland, Virginia and Texas on a basis of two years' hospital work or five years of successful practice.

The North Carolina Board reserves the privilege of rejecting any applicant for reciprocity without question or comment on the part of the applicant.

EXAMINATION PAPERS

MATERIA MEDICA AND THERAPEUTICS.

JOHN BYNUM, M.D., Winston-Salem.

1. Mention the symptoms you would get from long continued or toxic doses of the bromids. Give the symptoms of hydrargyrism.
2. Name the three most used preparations of opium, and state how much of each represents one grain of opium. Explain the constipating action of opium.
3. Name several drugs that render urine alkaline. Give their doses. What class of acids would you use to acidify alkaline urine? Give an example.
4. What would be your treatment in cerebral anemia and in cerebral hyperemia? What condition of the eye contra-indicates the use of mydriatics?
5. Give the source from which derived, the dose, contraindications for its use, of anti-diphtheritic serum. Mention several of the principal antitoxic serums, and the source from which derived.
6. Mention three specifics. Mention two principal hematics. State why strychnin is frequently combined with cathartics.
7. Give the official name, using the correct Latin terminations of Dovers power, compounds licorice powder, Fowler's Solution, Calomel, Hoffman's Anodyne, Saloi. Give compositions of seidlitz powder; of compound cathartic pills.
8. Name the organs influenced by (a) a cholagogue; (b) a sialagogue; (c) an oxytoxic; (d) a diaphoretic; (e) a mydriatic.

PRACTICE OF MEDICINE.

H. H. DODSON, M.D., Greensboro.

1. (a) What are the symptoms and physical signs of Incipient Pulmonary Tuberculosis?
   (b) Discuss the significance of the variation of the temperature.
   (c) What value has the X-Ray and Tuberculin test in confirming the diagnosis?
2. Name all reflexes affected and state in what way (diminished or exaggerated) in following diseases: Paresis, Locomotor Ataxia, Hemiplegia, Multiple Sclerosis, Spinal Tumor.
3. Differentiate true Angina Pectoris from Neurotic Angina.
4. (a) What tissues of the body may be invaded by gonococci, and how is the infection transmitted?
   (b) What is the treatment and the prognosis in Gonorrheal Rheumatism?
5. (a) What is meant by Gastric Atony (Myasthenia Gastrica)?
   (b) What are the symptoms and treatment of Gastric Atony with anacidity?
6. (a) Give the most common types of Herpes.
   (b) Give the pathology, symptoms, and treatment of Herpes Zoster.
7. Give symptoms and treatment of Hyperthyroidism and Hypothyroidism.

8. (a) Discuss briefly Serum Therapy.
   (b) What is the theory of the action of Vaccines?

ANATOMY, BACTERIOLOGY AND PATHOLOGY.

W. W. McKenzie, Salisbury.

1. Describe the endocardium.
2. Describe the piamater.
3. Describe one of the vertebra.
4. Differentiate between synarthrosis, amphiarthrosis, and diarthrosis, giving an example of each.
5. Describe the inguinal canal.
6. Describe the right kidney.
7. Describe the fallopian tubes and give their relations.
8. How is the eye supplied with blood?
9. Describe the pathological changes occurring in acute phlebitis.
10. Describe the pathological conditions of gastric ulcer.

SURGERY.

John C. Rodman, M.D., Washington.

1. Give symptoms and diagnosis of renal calculus.
2. How would you control an obstinate case of Epistaxis?
3. (a) Name varieties of fracture about the elbow joint.
   (b) How would you treat a fracture of the Olecranon?
4. (a) Name the varieties and degrees of burns.
   (b) The treatment (briefly) of each degree.
5. (a) Give indications for resection of the knee joint.
   (b) Describe its operative technique, only.
6. (a) For what conditions might a resection of the small Intestines be indicated?
   (b) Describe one method of an end-to-end anastomosis.
7. Describe operative technique only, of a circular amputation of middle third of leg.
8. Mention most frequent complications which might follow an ordinary abdominal operation.
9. Describe Periurethral Abscess as to its:
   (a) Etiology.
   (b) Complications.
   (c) Treatment.
10. How would you treat a case of Syphilis in its secondary stage?
    (a) Drugs?
    (b) Dosage?
    (c) Method of administration?

GYNECOLOGY AND OBSTETRICS.

L. B. McBrayer, M.D.

1. (a) Would you terminate a pregnancy of 3½ months or less supervening on a case of pulmonary or laryngeal tuberculosis?
   (b) If so, why; if not, why not?
   (c) If so, describe method.

(d) Provided patient went to full term, give directions for care of mother and child from hygienic standpoint.

2. (a) Give instruction for care of mother's breasts for two months before and two weeks after parturition.
   (b) Give instructions for care of child from completion of second stage of labor to end of second week after birth.
3. (a) Describe briefly the physiology of conception.
   (b) Explain multiple pregnancy. (c) Explain extra uterine pregnancy.
   (c) What particular part of the male and female elements is it that transmits the peculiarities of race, form, mentality, etc., from parents to offspring?
4. (a) What do you understand by uterine polypus? Give surgical treatment.
   (b) What do you understand by sub-peritoneal uterine fibroid? Give surgical treatment.
   (c) What do you understand by interstitial fibromyomata uteri? Give surgical treatment.
5. (a) What is Hematosalpinx? State some of the causes. Give treatment.
   (b) What is Pyosalpinx? State some of the causes. Give treatment.
   (c) Discuss very briefly tuberculosis of the Fallopian tube. State its comparative frequency as regards other portions of the genital tract. Give treatment.
6. (a) What is Amenorrhea? When is it physiological? When pathological? State two or three causes of pathological amenorrhea, and treatment of each.
   (b) What is sterility as applied to a woman of child-bearing age? Give two or more causes and treatment of each.

PHYSIOLOGY AND PATHOLOGY.

BENJ. K. HAYS, M.D., Oxford.

1. Define the following:
   Aphemia.
   Astigmatism.
   Haemolysis.
   Hypoleucocytosis.
   Hydrolysis.
   Megaloblast.
   Melena.
   Poikilocytosis.
   Stercoraceous.
   Xanthuria.
2. Give classification of food principles and state relative nutritional value of each:
   Classification.
   Food value.
   Elements contained.

Give composition (in food principles) of mother's milk.
Of cow's milk.
Of an egg.
(a) The white.
(b) The yolk.

3. Give causes of normal heart sounds.
4. How does excess of serum escape from lateral ventricles of brain?
5. Give life history of a red corpuscle in health, and discuss its changes in disease.
6. Draw diagram of transverse section of spinal cord in cervical region, showing chief columns.

CHEMISTRY AND DISEASES OF CHILDREN.

J. L. Nicholson, M.D., Richlands.

1. What facts must be determined in order to ascribe a rational molecular formula to an organic compound?
2. How would you ascertain the presence of (a) organic impurities, (b) chlorides, and (c) nitrites, in drinking water?
3. Account (a) for the constant formation of sulphuric acid in the living body, (b) for its unique protective powers to the organism.
4. Cloudy urine Name not less than five cases, and present the manner of reaching differential diagnosis.
5. Tell something of the colloidal state, and the reactions that go on in living matter.
6. Discuss the more serious sequalæ of the eruptive fevers, with special reference to prevention and therapy.
7. Describe characteristic attitude and facial expression of (a) infantile scurvy, (b) cerebro spinal meningitis, (c) tubercular meningitis.
8. What diseased conditions in infancy retard the growth of body-length? Describe in detail the symptoms by which you would distinguish between them.
9. "High percentage albumen milk": Tell something of its preparation. What is its food value, and what are the indications for its use as a corrective of digestive disturbances in infancy?
10. Discuss the factors contributing to the prevalence of Summer diarrhoea in early life, placing them in the order of their importance. Make interpretation of the various kinds of abnormal infant stools.

The equivalent of four other questions will be given orally and by laboratory process.

First Meeting of the New Board, June 18, 1914.

Dr. Stevens in the Chair.

Dr. Royster, temporary secretary.

Dr. J. F. Highsmith was elected President.

Dr. H. A. Royster, was elected Secretary.

On motion, the salary of the Secretary was made $500 a year, the Board pledging itself for any deficit.

Assignment of subjects was made, as follows:

Surgery—H. A. Royster, Raleigh.
Gynecology, Obstetrics and Embryology—J. F. Highsmith, Fayetteville.
Anatomy, Histology and Microscopy—C. T. Harper, Wilmington.
Practice of Medicine—J. G. Blount, Washington.
Pharmacology, Materia Medica and Therapeutics—J. Q. Myers, Charlotte.
Chemistry and Diseases of Children—I. M. Taylor, Morganton.
Physiology, Pathology and Hygiene—M. L. Stevens, Asheville.

Moved and seconded that a Committee of three be appointed to consider any changes in legislation and to confer with the Legislative Committee of the State Medical Society.

Dr. H. A. Royster, I. M. Taylor, C. T. Harper, committee appointed.

Dr. H. A. Royster was appointed delegate to the next meeting of the Federation of Examining Boards.

Adjourned.

GRANTED LICENSE BY RECIPROCITY.

Name and Address	*College*	*Year*	*Preliminary*	*State*
Barr, Frank E., Townesville	Univ. Va.	1908	Miss. A. & M. Col.	Mississippi
Bernard, Holman, Welch, W. Va.	Med. Col. Va.	1912	High School	West Virginia
Boice, Edmund S., Richmond, Va.	Univ. Pa.	1909	B. A. W. & L. Va.	Virginia
Bullitt, Jas. B., Chapel Hill	Univ. Va.	1897	M. A. W. & L. Va.	Mississippi
Denchfield, A. L., Asheville	Univ. N. Y.	1905	B. S. N. Y. Univ	New York
Earnhardt, J. M., Richmond, Va.	Med. Col. Va.	1913	College	Virginia
Garrison, W. H., Whitney	Atlan. S. M.	1909	High School	Georgia
Hayward, Martha, Raleigh	P. & S. Chi.	1907	Normal College	Illinois
Henderson, T. B., Henderson	Med. Col. Va.	1906	High School	Virginia
Hollyday, W. M., Asheville	Univ. Md.	1908	High School	Maryland
Jarman, F. J., Roanoke Rapids	U. C. M. Va.	1911	High School	Virginia
Johnson, J. B., Old Fort	Univ. Louis.	1905	B.S.	Tennessee
Knoefel, A. E., Asheville	Univ. Louis.	1893	Ph.G.	Louisiana
Linney, R. Z., Hopeton, Okla.	Univ. Gt.	1901	2 yrs. col.	Oklahoma
Mallett, E. P., Hendersonville	L. I. Med. Col.	1889	B. S. Hobart Col.	Virginia
Milbee, R. O., Cove City	Univ. Louis.	1911	High School	West Virginia
Munt, H. F., Boardman	Med. Col. Va.	1911	High School	Virginia
Murphy, Wm. A., Goldsboro	Univ. Va.	1910	B.A. Univ. N. C.	New York
McCain, P. P., Sanatorium	Univ. Md.	1911	College	South Carolina
Newman, H. H., Salisbury	Johns. Hop.	1913	B.A. Ran. Mac. Va.	District of Columbia
Packard, G. H., White Rock	P. & S. Balt.	1898	High School	Massachusetts
Purdy, J. J., Oriental	Med. Col. Va.	1900	High School	Virginia
Purinton, H. H., Durham	Bowdoin	1891	High School	Massachusetts
Saliba, John, Elizabeth City	Univ. Edin.	1893	B.A.	England
Shohan, Joseph, Asheville	P. & S. Bos.	1901	High School	Massachusetts
Smith, D. Lesene, Spartanburg, S. C.	Med. Col. S. C.	1903	College	South Carolina

GRANTED LICENSE BY EXAMINATION.

Name and Address	*Medical College*	*Year*	*Preliminary*
Armstrong, Charles W., Troy, N. C.	Univ. Md.	1914	2 yrs. at col.
Ashby, Edward C., Mt. Airy	Univ. Pa.	1914	A.B., Trinity, N. C.
Baynes, Ralph H., Hurdles Mill	Univ. Md.	1914	1 yr. col.
Brandon, W. D. R., Statesville	Univ. Md.	1914	High School
Belton, Joseph F., Mt. Airy	Univ. Pa.	1914	High school
Belk, W. P., Charlotte	Univ. Pa.	1914	A.B., University N. C.
Black, Oscar R., Piney Creek	N. C. Med.	1914	High School
Buie, Roderick M., Bonlee	Jeff.	1914	B.S., Wake Forest

Bryson, Edmond J., Cullowhee	Bennett, Chi.	1913	High School
Bennett, F. McL., Clinton	Med. Col. Va.	1914	High School
Brown, Thos. J., (col.), Raleigh	Leonard	1914	College
Bowman, Earl L., Liberty	Med. Col. Va.	1914	College
Bynum, Clarence M., Goldston	Med. Col. Va.	1914	High School
Bowdoin, Geo. E., Wilmington	Med. Col. Va.	1914	1 year University N. C.
Clinton, Roland S., Gastonia	Univ. Md.	1914	1 year University N. C.
Crews, Numa, Henderson (5)	Jeff.	1914	High school
Cocke, Eugene R., Asheville	Jeff.	1913	2 years University N. C.
Cozart, W. S., Jr., Stem	Med. Col. Va.	1914	High School
Clark, E. S., Clarkton	Med. Col. Va.	1914	A.B. Davidson
Caldwell, Joseph H., Winnsboro	N. C. Med.	1914	A.B.
Fetner, L. M., Charlotte	N. C. Med.	1914	B.S. Davidson
Futrell, Lokie M., Severn	Med. Col. Va.	1914	High school
Flowe, Robert F., Kannapolis	N. C. Med.	1913	2 year college
Green, P. P., Thomasville	Univ. St. Louis	1914	B.S. Wake Forest
Houser, Oscar J., Cherryville	N. C. Med.	1914	High school
Hicks, Claud B., Durham	Univ. Md.	1914	A.B. Trinity
Hassell, Cecil S., Greenville	Univ. Md.	1914	High school
Henderson ,Clair C., Lowell	Univ. Md.	1914	High school
Hartsell, Joe A., Concord	Jeff.	1912	2 years college
Houser, Marcus C., Cherryville	N. C. Med.	1914	1 year college
Hardin, Ronda H., Boone	N. C. Med.	1914	2 years college
Hurdle, Samuel W., Reidsville	Jeff.	1914	A.B.
Harris, Jack H., Raleigh	Jeff.	1914	1 year college
Herndon, L. S., Dover	Med. Col. Va.	1914	
Irwin, Henderson, Charlotte	Univ. of Md.	1912	B.S. Davidson
Johns, Island L. (col.), Raleigh	Leonard	1914	A.B. Shaw Univ.
Kibler, Wm. H., Morganton	Univ. Pa.	1914	A.B. Univ. N. C.
Kendrick, John F., Charlotte	Jeff.	1914	B.S. Univ. N. C.
McIntosh, Leland C., Henderson	Atlan. Med.	1913	A.B. Wake Forest
Mordecai, Alfred, Durham	Univ. Md.	1914	High school
Norfleet, E. P., Roxobel	Med. Col. Va.	1914	High school
Orr, Wm. L., Matthews	N. C. Med.	1914	College
Oliver, Adbi H., Selma	Jeff.	1914	1 year college
Pace, Karl B., Maxton	Jeff.	1914	1 year college
Petree, Paul A., Germanton	Jeff.	1914	1 year college
Parrish, Robert E., Smithfield	Jeff.	1914	1 year college
Price, H. L., Unionville	N. C. Med.	1914	High school
Putney, Robert H., Elm City	Med. Col. Va.	1914	3 years college

GRANTED LICENSE BY EXANINATION—CONTINUED.

Name and Address	*Medical College*	*Year*	*Preliminary*
Parris, Hubert A. (col.), Raleigh	Leonard	1914	College
Rodman, Nathaniel F., Norfolk, Va.	Jeff.	1914	3 years college
Roebuck, Chas. T., Williamston	Med. Col. Va.	1914	High school
Scruggs, Wm. M., Rutherfordton	Univ. Pa.	1914	B.S. Wake Forest
Sharpe, Thos. G., Charlotte	N. C. Med.	1913	1 year college
Sloan, David B., Ingold	Univ. Pa.	1914	A.B. Univ. N. C.
Speed, Joseph A., Durham	Jeff.	1914	2 years college
Sherrill, Coite L., Catawba	N. C. Med.	1914	B.S. Wake Forest
Spoon, Charles E., Kimesville	Univ. of Tenn.	1907	1 year college
Shafer, Irving E., Gold Hill	N. C. Med.	1914	1 year college
Sellers, Robert R., Orwello	Med. Col. S. C.	1914	1 year college
Sharpe, Chas. R., Linwood	Jeff.	1914	B.S. Wake Forest
Saunders, Sheldon A., Aulander	Jeff.	1914	1 year college
Smith, George M., Unionville	N. C. Med.	1914	High school
Stewart, Chas. C. (col.), Greensboro	Howard	1911	College
Shaw, E. B., Whitney	Med. Chi. Phil.	1912	1 year college
Thaxton, Benj. A., Roxboro	Jeff.	1914	B.S. Wake Forest
Thompson, Silas R., Lumberton	N. C. Med.	1914	High school
Troxler, Raymond M., Brown Summit	Univ. Md.	1914	High school
Turlington, Lee F., Mt. Airy	Univ. Pa.	1914	College
Tidwell, J. E., Andrews	Grant Univ. Chat.	1903	High school
Thompson, Hugh A., Raleigh	Univ. Pa.	1914	A.B. Univ. N. C.
Thompson, Jos. S. (col.), Raleigh	Leonard	1914	College
Wilkerson, Thaddeus E., Roxboro	Univ. Pa.	1914	B.S. Univ. N. C.
Warren, Andrew J., Hurdles Mill	Tulane	1914	College
Ward, Hugh D., Southport	Univ. Pa.	1914	College
Wilson, Newton G., Madison	N. C. Med.	1914	High school
Withers, Geo. L., Davidson	N. C. Med.	1914	2 years college
Woods, T. B., Maysville	Univ. Md.	1913	2 years college
Walker, J. B., Union Bridge	Med. Col. Va.	1914	2 years college
York, Chas L., Spata	N. C. Med.	1914	High school
Nash, J. F., Charlotte	N. C. Med.	1914	A.B.

GRANTED LIMITED LICENSE.

Locklear, G. W. (Indian), Pembroke	Univ. Baltimore	1903	None

(Licensed to practice medicine among the Indians of Robeson County.)

Election of Board of Medical Examiners

Wednesday Afternoon, June 17, 1914.

Dr. J. M. Parrott, President: It is now in order to have the election of a Board of Medical Examiners, and we will proceed.

Dr. A. J. Crowell, Charlotte: The election is provided for in the Constitution and By-Laws, but I move that in this election there be nine tellers, that every man deposit his own ballot and do it while sitting, and that we give three minutes for the nomination and two minutes for the seconds.

Dr. J. M. Parrott: All in favor of this motion please say "aye." (This motion was carried.) Gentlemen, there are seven men to be elected. Will you vote for them separately?

Dr. G. T. Sikes: This is a very important matter and it comes to the heart of every man in this Society to have the privilege to present and secure for his friend, if possible, an honorable position. I think that this privilege should be extended to every man of this Society, and that we should give every one a fair showing by voting for each man separately and individually.

Dr. A. J. Crowell: What do you mean by separately and individually?

Dr. G. T. Sikes: I move, gentlemen, that the first ticket contain the names of seven men. After one man has been elected, the next ticket contain one less, and that we drop the last man every time.

Dr. P. R. Hardee, Stem: I want to ask a question. How are we going to know when a man is elected? How many votes does it take to elect a man?

Dr. H. McK. Tucker, Raleigh: What does any one mean by "majority?"

Dr. G. T. Sikes: I mean the maority of the votes cast.

Dr. Cyrus Thompson, Jacksonville: I understand from this motion that we should have to drop one man each time, and the one receiving the highest number of votes will be declared elected. If I knew how many men you were going to nominate, I would express my sentiments on the subject. I think the man who receives the highest number of votes cast should be declared elected.

Dr. J. M. Parrott: The appointment of the tellers is as follows: Drs. K. G. Averitt, J. S. Carroll, T. E. Anderson, Oscar McMullan, A. A. Kent, G. T. Sikes, J. P. Munroe, J. Howell Way, J. C. Rodman.

Dr. G. T. Sikes: I want to amend the motion as follows: That we vote a ballot with seven names on the ballot in the beginning, and if any part or all of that seven get a majority, he would be declared elected, and that the remaining ones be voted on as before.

Dr. L. B. McBrayer: I move as an amendment to Dr. Sikes' motion that the tellers be instructed that in order to know the number of votes cast, they count the slips, and the number of slips will indicate the number of votes cast and the majority of that number will be elected.

Dr. G. T. Sikes: I accept Dr. McBrayer's amendment.

Dr. J. M. Templeton: I think, Mr. Chairman, that it is possible for more than seven to receive a majority of the votes cast. In that case, would it not be well to designate the seven highest out of ten to be elected?

Dr. J. T. J. Battle: I rather second Dr. Templeton's amendment, because 10, 12 or 15 men can get a majority.

Dr. L. B. McBrayer: I would like to add one word or two to Dr. Templeton's amendment. I would like to move that the seven men receiving the highest number of votes cast be elected, provided they receive the majority.

Dr. J. M. Parrott: Gentlemen, you hear the motion, the amendment to the motion and the amendment to the amendment. Is there any discussion?

This motion was carried and the Chair recognized Dr. J. P. Munroe, of Sanford.

Dr. J. P. Munroe: Mr. President, and members of the Society: I rise not to make a speech, but to place in nomination a gentleman and member of this Society, and in a certain sense, I feel like saying that he is worthy of the unanimous vote of the Society. In fact, I believe that I feel as many of the others of this Society feel, that I am somewhat justified in the prediction that he will not only be nominated on the first ballot, but will receive the unanimous vote of this Society. You know who my man is. He is worthy of this honor, gentlemen, not because I am nominating him, not because there are others who wanted to nominate him, not because of the speeches that are going to be made in his favor, but because he is justly fitted for this position. In the first place, he is a man of learning, he is a man of education and a man of high character, and his experience peculiarly fits him for this work. There is nothing narrow about him, and no one will have any room to say that he is not giving them justice or that he is showing partiality towards any one else. I take the greatest pleasure in nominating Dr. Hubert A. Royster, of Raleigh, North Carolina.

Dr. John T. Burrus, High Point: I come before you today to present the name of a gentleman who has for twenty years labored for the profession of medicine in North Carolina. The gentleman to whom I refer has rendered valuable service to this Society. It gives me great pleasure and privilege that I consider an honor to present the name of the gentleman who is so fitted to this position. I nominate Dr. D. A. Stanton, of High Point.

Dr. John H. Tucker, Charlotte: I only wish that you knew the man whom I am going to nominate as well as I do. For twenty-five years he has been a regular attendant of this Society. In talking to a man from his own county, he has stated that he did not expect to receive this nomination. He is fully qualified for the honor of filling this position. He is a student and a man of learning fitted for this place, and will do justice to the cause and to the people. It gives me great pleasure to nominate Dr. Fletcher R. Harris.

Dr. M. T. G. Anderson, Gastonia: The man whom I am going to nominate is one of the highest sense of honor and responsibility. I refer to Dr. L. N. Glenn, of Gastonia.

Dr. Frank H. Russell, Wilmington: I wish to nominate a man, who has for twenty years been a member of this Society. In this meeting of the North Carolina Medical Society, he has served as Chairman of the Surgical Section. I refer to Dr. Charles T. Harper, of Wilmington.

Dr. Chas. O'H. Laughinghouse, Greenville: I rise to place for nomination a member of the Board of Medical Examiners, a man who has been useful and is looked upon with the greatest respect and confidence. He is a man of high character, energetic, conscientious, intelligent and amply fitted for this honorable position. I refer to Dr. John G. Blount, of Washington, North Carolina.

Dr. A. B. Croom, Maxton: I have not gotten up here to make another speech, but my first request is that in the election of the seven men who are to fill these responsible positions, we first consult our consciences and put the best men in North Carolin on that Board. It matters not whether we want him personally, but the question is, is he well fitted for the place? My man is well fitted I am sure, and I refer to Dr. J. F. Highsmith, of Fayetteville.

Dr. John R. Irwin, Charlotte: Our Society and North Carolina needs men on the Medical Board of energy and enthusiasm, men who are abreast of the times and in sympathy with the higher ideals in medicine, men of dignity, character, ability, and loyalty to the profession and our Society. It gives me great pleasure to present to you the

name of one who ably and admirably fills these requirements. I place before you, for your suffrage and your consideration, the name of one, as I say, who admirably fulfills these requirements. I present to you the name of Dr. John Quincy Myers, of Charlotte.

Dr. Carl V. Reynolds, Asheville: In selecting men to fill the vacancies on this Examining Board, we know that the North Carolina Medical Society has a great number of men qualified with characteristics sufficient to fill it with dignity and distinction. My man, I know, is qualified. He has the power and ability to say "no" to the unworthy, and the power and ability to give justice where justice is deserved. I know the Tenth District is represented here today in quite a large number and I want to say that they are a unit in favor of this man. They represent thirteen counties, they are in a section well situated, as they are in a resort town, and all good doctors like to go to such places to practice medicine. I understand that in the last year fifteen or twenty have been granted temporary license there. I think it would be a convenience to quite a number of men to have a representative in the Tenth District. This man has labored for twenty-three years, ever since he had a right to become a member of the Society. He has ability and all the qualifications. I want to place in nomination the name of Dr. M. L. Stevens, of Asheville.

Dr. E. T. Dickinson: I want to place in nomination the name of a practical man, a man upon whom this Society can not confer any honor that is not deserved. This man you all know, I suppose. If there is one here who does not know him, I will vouch for him. This man is Dr. E. G. Moore, of Elm City.

Dr. J. A. Armfield: I nominate a man who I think is a high-toned gentleman, an educated man, who will discharge his duty, I guarantee, as well as any man here. He has done a lot of county work. He is a sanitary crank. I nominate Dr. H. D. Stewart, of Monroe.

Dr. J. Howell Way, Waynesville: I have no wish to delay you with a lengthy nominating speech. I desire to place in nomination the name of a gentleman who entered the profession about thirty years ago, who has, by his devotion to business, developed into one of the strongest practitioners in North Carolina, a man of the strictest and most sterling type of integrity, a man who, from every standpoint, will fill a position on the Board of Medical Examiners with distinction to the Board and to himself. I desire to nominate Dr. Isaac M. Taylor, of Morganton.

Dr. J. B. Whittington, Winston-Salem: I wish to nominate a gentleman who has for thirty years labored in his profession, and who is amply qualified for this place. He is a man whom Forsyth County

Medical Society would like to have on this Board. I do not need to tell you more of a man who is already known to most of you. He is Dr. H. S. Lott, of Winston-Salem.

Dr. J. M. Templeton, Cary: I wish to place in nomination the name of a man who has all the characteristics that have been mentioned. He has made good in every position he has held. He is young, industrious, optimistic; and if you want to do honor to this Society and credit to the State, put upon this Board a man from Carteret, K. P. B. Bonner.

Dr. Thomas E. Anderson, Statesville: I rise to place in nomination for membership on the Board of Medical Examiners a man whose name will at once commend him to your judgment and consideration. I will not consume your time in portraying his many virtues or in calling attention to his peculiar fitness for this high office. I simply present him as a man fitted to fill this place. I present the name of Dr. A. J. Tayloe, of Washington.

Dr. J. T. J. Battle, Greensboro: I wish to present the name of a gentleman who is a literary and professional and ethical gentleman. He lives in the Piedmont section of the State. Location has something to do with the selection of a member of this Board. Young doctors coming into the State and wishing to get temporary license have not the money nor the time to travel around over the State. I present to you the name of a member of the Society for twenty-one years. I have nothing to say of his capability. When I mention his name that will be well understood. I refer to Dr. C. W. Moseley, of Greensboro.

Dr. David J. Hill, Lexington: I have the privilege of nominating a man who has attended the sessions of this Society for twenty-odd years, who has always labored for the good of the Society, and who has claimed absolutely nothing at the hands of the State Society. He, like the rank and file, feels it honor enough to serve this medical association, but if you see fit to elect the man I nominate, you will elect a man who will do great credit to the Society. I nominate Dr. Charles A. Julian, of Thomasville.

Dr. J. M. Northington, Boardman: I rise to nominate a man of excellent character, who has devoted himself to a specialty, the broadest specialty and that promising most development, that of internal medicine. He is a leader in the profession. I am moved by every impulse to make this nomination. I nominate Dr. John E. Bellamy, of Wilmington.

Dr. C. H. Cocke, Asheville: I wish to second the nomination of Dr. M. L. Stevens, of Asheville.

Dr. Wm. Allan, Charlotte: I want to place in nomination Dr. D. A. Garrison, of Gastonia.

Dr. A. W. Calloway, Asheville: I take pleasure in presenting for membership on this Board the name of Dr. Ernest S. Bullock, of Wilmington, the progressive and accomplished son of the late lamented Dr. D. W. Bullock. I feel that he will reflect honor upon this Society. He is a member of the Onslow County Medical Society, of the Tri-State Medical Society, and for three years he has been Secretary of the New Hanover Medical Society and Secretary of the Third District Medical Society. Not only is he one of the finest members in that body, but he has been the chief actor in its formation. He is a physician of prominence and ability, a surgeon of capacity and benevolence. He has a large practice, is an aggressive, tireless, systematic worker, keeps always at it, is a man of originality, a man of brain, a man of resourcefulness, who does his own thinking and knows how to do things.

Dr. D. E. Sevier, Asheville: I desire to second the nomination of a man who has been closely identified with this association for the past twenty years, and who measures up thoroughly to the requirements. I second the nomination of Dr. C. A. Julian.

Dr. G. T. Sikes, Grissom: I second the nomination of Dr. D. A. Stanton, Dr. J. F. Highsmith, and Dr. H. D. Stewart.

Dr. Oscar McMullan, Elizabeth City: I second the nomination of Dr. F. R. Harris.

Dr. M. L. Townsend: I want to place in nomination a man who will measure up to any of the others nominated, and who comes from a section of the State that has had no representative in recent times, the old county of Wilkes. I place in nomination Dr. W. P. Horton.

Dr. Oron Moore, Charlotte: I wish to second the nomination of Dr. John Q. Myers, made by Dr. John R. Irwin, of Charlotte.

Dr. A. A. Kent, Lenoir: I wish to second the nomination of Dr. E. G. Moore.

Dr. C. N. Peeler, Charlotte: I deem it a pleasure to rise to second the nomination of a man who is not any better than the men mentioned, but who will measure up to any of them, and who will reflect honor upon the Board and upon the Society. I second the nomination of Dr. H. S. Lott, of Winston.

Dr. W. M. Jones, Greensboro: I second the nomination of Dr. K. P. B. Bonner.

Dr. A. J. Crowell, Charlotte: I want to second the nomination of a man second to none in the profession in North Carolina, a man well

qualified to fill a position on the Board of Medical Examiners, a man whom any one in this hall might feel honored to nominate or second—Dr.M. L. Stevens.

Dr. W. C. Whitfield, Pitt County: I wish to second the nomination of my friend and neighbor, Dr. Armistead J. Tayloe, of Washington.

Dr. Joseph Graham, Durham: I second the nomination of Dr. Charles T. Harper, of Wilmington. Dr. Harper has been president of the New Hanover Medical Society, Vice-President of the Tri-State Medical Society, and president of the surgical section of this meeting, and he is well qualified to fill a place on the Board of Medical Examiners.

Dr. J. A. Patterson: I wish to second the nomination of a man whom it will be an honor to have on the Board, Dr. H. A. Royster, of Raleigh.

Dr. J. W. Long, Greensboro: I rise to second the nomination of one of my neighbors, a man I have known for twenty-one years, a man who has made good in every department of life, whose character as a Christian gentleman is above reproach, whose name is not tainted by scandal or by slander of any kind, a man who practiced general medicine for many years and gradually developed into a specialist. I rise to second the nomination of Dr. C. W. Moseley, of Greensboro.

Dr. J. M. Manning, Durham: I rise to second the nomination of Dr. J. M. Highsmith, of Fayetteville.

Dr. Oscar McMullan: I wish to second the nomination of Dr. E. S. Bullock.

Dr. Claude E. Reitzel: I wish to second the nomination of Dr. D. A. Stanton.

Dr. W. P. Beall, Greensboro: I wish to second the nomination of Dr. Isaac M. Taylor, of Morganton.

Dr. Chas. B. Wilkerson, Apex: I wish to second the nomination of Dr. H. A. Royster.

Dr. Edwards: I wish to second the nomination of Dr. Horton, of Wilkesboro.

Dr. Cyrus Thompson, Jacksonville: I want to second the nominations of H. A. Royster, Isaac M. Taylor, Dr. Hardy, Dr. Bellamy, Dr. John G. Blount, F. R. Harris, and D. A. Garrison.

On the first ballot 308 votes were cast, number necessary to elect, 155. The number of votes received was as follows: Royster, 221; I. M. Taylor, 167; Stevens, 144; Highsmith, 156; Blount, 121; Harris, 111; Bellamy, 87; Moore, 91; Harper, 92; Stanton, 84; Julian, 50; Myers, 74; Garrison, 38; Glenn, 39; A. J. Tayloe, 49; Moseley, 67; Lott, 60;

Bullock, 43; Stewart, 27; Horton, 16; Bonner, 26; C. I. Taylor, 3; C. F. Harris, 1; J. A. Williams, 1; Chas. L. Taylor, 1. Drs. Royster, I. M. Taylor and Highsmith were elected on this ballot.

Drs. Moseley, Julian, Horton and Stewart withdrew after the first ballot.

Second ballot: Votes cast, 162; necessary to elect, 82. Votes received: Stevens, 106; Blount, 86; Stanton, 72; Harper, 71; Harris, 62; Moore, 58; Bellamy, 56; Myers, 50; Lott, 23; Tayloe, 21; Glenn, 13; Garrison, 16; Bonner, 8; Julian, 2; Horton, 1. Elected: Drs. Stevens and Blount. Withdrew: Drs. Glenn, Bullock and Bonner.

Third ballot: Votes cast, 141; necessary to elect, 71. Votes received: Stanton, 40; Harper, 43; Harris, 39; Moore, 23; Bellamy, 46; Myers, 56; Tayloe, 4; Garrison, 2. No election.

Fourth ballot: Votes cast, 172; necessary to elect, 87. Votes received: Myers, 67; Harper, 60; Bellamy, 63; Stanton, 37; Harris, 45; Moore, 34; Tayloe, 1; Horton, 1; Garrison, 1. No election.

Fifth ballot: Votes cast, 193; necessary to elect, 97. Votes received: Myers, 80; Harper, 67; Bellamy, 65; Stanton, 39; Harris, 59; Moore, 37; Garrison, 1; Lott, 1. No election.

Sixth ballot: Votes cast, 196; necessary to elect, 99. Votes received: Myers, 83; Harper, 72; Bellamy, 73; Harris, 62; Stanton, 25; Moore, 37; Tayloe, 1; Moseley, 2. No election. Withdrew: Stanton.

Seventh ballot: Votes cast, 197; necessary to elect, 99. Votes received: Myers, 101; Harris, 68; Bellamy, 65; Harper, 92; Moore, 36; Stanton, 1; Tayloe, 1. Elected: Myers.

Eighth ballot: Votes cast, 195; necessary to elect, 98. Votes received: Harper, 104; Bellamy, 47; Harris, 32; Moore, 12; Stanton, 1. Elected: Harper.

Alphabetical List of Members of the Medical Society with Postoffice Address

Name.	*Address.*
Abel, J. F.	Waynesville
Abernethy, C. O.	Raleigh
Abernethy, E. A.	Chapel Hill
Abernethy, H. N.	Denver
Abernethy, J. S.	Charlotte, r.f.d. No. 6
Abernethy, M. B.	Reidsville
Absher, D. C.	Mount Airy
Achorn, J. W.	Pine Bluff
Adams, C. A.	Durham
Adams, C. E.	Gastonia
Adams, J. L.	Asheville
Adams, M. R.	Statesville
Adams, N. B.	Murphy
Adkins, E. H.	Rosemary
Akerman, Joseph	Wilmington
Alexander, A. L.	Charlotte
Alexander, J. R.	Charlotte
Alford, A. E. B.	Greensboro
Allan, William	Charlotte
Allen, B. G.	Henderson
Allen, J. A.	New London
Allen, R. L.	Waynesville
Allhand, J. M.	Cliffside
Allred, E. B.	Mount Airy
Ambler, C. P.	Asheville
Anders, M. G.	Gastonia
Anderson, Albert	Raleigh
Anderson, C. A.	Burlington
Anderson, J. A.	McAdenville
Anderson, J. G.	Asheville
Anderson, J. N.	Albemarle
Anderson, Nathan	Wilson
Anderson, P. V.	Richmond, Va.
Anderson, T. E. (Hon.)	Statesville
Anderson, W. H.	Wilson
Anderson, W. S.	Wilson
Andrews, N. H.	Pembroke
Andrews, R. M.	Union Mills, r.f.d.
Andrews, V. L.	Mount Gilead
Anthony, J. E.	Kings Mountain
Archer, I. J.	Black Mountain
Armfield, Romulus	Marshville
Arnold, L. J.	Lillington
Asbury, F. E. (Hon.)	Worthville
Ashby, T. B.	Mount Airy
Ashcraft, J. E.	Monroe
Ashworth, B. L.	Marion
Ashworth, W. C.	Greensboro
Attmore, G. S. (Hon)	Stonewall
Austin, F. D. C.	Charlotte
Austin, J. A.	Charlotte
Austin, J. W.	High Point
Averitt, K. G.	Cedar Creek
Aydlett, H. T.	Elizabeth City
Aydlette, J. P.	Earl
Bahnson, H. T. (Hon.)	Winston-Salem
Baird, C. A.	Mt. Airy
Baker, J. M. (Hon.)	Tarboro
Ball, M. W.	Newport
Ballard, A. M.	Asheville
Bandy, W. G.	Maiden
Banner, C. W.	Greensboro
Barbee, G. S.	Wendell
Barefoot, M. L.	Dunn
Barnes, B. F.	Elm City
Barron, A. A.	Charlotte
Bass, H. H.	Henderson
Bass, S. P.	Tarboro
Battle, I. P.	Rocky Mount
Battle, J. P.	Nashville
Battle, J. T. J.	Greensboro
Battle, K. P. (Hon.), Jr.	Raleigh
Battle, S. W.	Asheville
Baynes, R. S.	Hurdle Mills
Beall, L. G.	Greensboro
Beall, W. P. (Hon.)	Greensboro
Beam, R. S.	Lumberton
Bell, A. E.	Mooresville
Bell, G. M.	Wakefield
Bellamy, R. H.	Wilmington
Bellamy, W. J. H. (Hon.)	Wilmington
Bennett, J. H.	Wadesboro
Best, H. B.	Wilson
Bethune, A. C.	Vass
Biggs, M. H.	Rutherfordton
Bingham, G. P.	Lenoir
Bitting, N. D.	Durham
Bizzell, T. M.	Goldsboro
Black, J. C.	Harrisburg
Blair, A. McN.	Southern Pines
Blair, J. M.	Monroe
Blair, M. P.	Marshville
Blake, J. F.	Chadbourn
Blalock, B. F.	Norwood
Blanchard, T. W.	Hobbsville
Blount, J. G.	Washington
Boaz, T. A.	Stonesville
Bobbitt, E. H.	Louisburg
Boddie, N. P.	Durham
Bolton, Mahlon	Rich Square
Bonner, K. P. B.	Morehead City
Bonner, Montague	New Bern
Booker, L. S.	Durham
Boone, W. H.	Durham
Booth, S. B.	Oxford
Booth, T. L.	Oxford
Bostic, W. C.	Forest City
Bowers, M. A.	Thomasville
Bowling, H. B.	Durham
Boyden, W. C.	China Grove

Name.	*Address.*
Boyles, A. C.	Durham
Boyles, J. H.	Greensboro
Braddy, W. H.	Greensboro
Bradsher, W. A.	Roxboro
Brantley, H.	Spring Hope
Braswell, J. C.	Whitakers
Brawley, M. H.	Salisbury
Brawley, R. V.	Salisbury
Brenizer, A. G.	Charlotte
Briggs, H. H.	Asheville
Brittle, P. C.	Conway
Brooks, B. U.	Durham
Brooks, Moses	Marshville
Brookshire, H. G.	Leicester
Brothers, J. E.	Goldsboro
Brown, G. A.	Mt. Ulla
Brown, F. L.	Scott's Hill
Brown, G. W.	Raeford
Brown, J. P.	Fairmont
Brown, J. S.	Hendersonville
Brownson, W. C.	Asheville
Bryan, L. D.	Snead's Ferry
Bryant, C. G.	Newland
Buchanan, C. L.	Plumtree
Buchanan, E. J.	Lexington
Buchanan, S. E.	Concord
Buckner, J. M.	Swannanoa
Bucker, R. G.	Asheville
Buffalo, J. S.	Garner
Bullock, D. W. (Hon.)	Wilmington
Bullock, S. B.	Wilmington
Bullock, T. C.	Autry
Bullock, W. B.	Hester
Burbage, T. I.	Como
Burleyson, L. N.	Concord
Burns, W. M.	Goldston
Burrus, J. F.	High Point
Burt, S. P.	Louisburg
Burtt, B. W.	New Hill
Busby, J. G.	Spencer
Bynum, John	Winston-Salem
Bynum, W. H.	Germanton
Caddell, S. W.	Ramseur
Caldwell, D. G.	Concord
Caldwell, J. H.	Charlotte
Caldwell, M. M.	Wilmington
Callaway, A. W.	Asheville
Campbell, A. C.	Raleigh
Campbell, J. I.	Norwood
Carlton, R. L.	Kernersville
Carpenter, F. A.	Mooresville
Carr, R. L.	Rose Hill
Carroll, E. D. D.	Raleigh
Carroll, J. L.	Hookerton
Carroll, J. W.	Wallace
Carroll, R. S.	Asheville
Carter, G. H.	King's Creek
Carter, H. W.	Washington
Cason, H. M. S.	Edenton
Cathell, J. E.	Linwood, R. F. D. 1
Caton, G. A.	New Bern

Name.	*Address.*
Cauble, H. H.	Kannapolis
Cauthen, R. S.	Charlotte
Caveness, Z. M.	Raleigh
Champion, C. O.	Mooresboro
Chapman, G. M.	Morven
Chaney, T. M.	Winston
Chapin, H. T.	Pittsboro
Cheatham, Archibald	Durham
Cheatham, Goode	Brevard
Cheesborough, T. P.	Asheville
Choate, G. W.	Rockwell
Clark, G. L. (Hon.)	Clarkton
Clarke, F. M.	Middletown
Clemenger, F. J.	Asheville
Clement, E. B.	Atlantic City, N. J.
Clifford, J. S.	Charlotte
Clingman, J. J.	Cana
Clodfelter, C. M.	Lexington
Cloninger, L. V.	Statesville
Cochran, J. S.	Fayetteville
Cocke, C. H.	Asheville
Cocke, J. E.	Asheville
Coffey, L. H.	Valmead
Cohn, B. W.	South Mills
Coiner, N. L.	Durham
Colby, C. D. W.	Asheville
Cole, W. F.	Greensboro
Coleman, G. S.	Kenly
Cooke, Q. H.	Woodland
Cooper, G. M.	Clinton
Coppedge, T. O.	Raleigh
Corpening, O. J.	Granite Falls
Costello, M. J.	Asheville
Costner, G. H.	Lincolnton
Cotton, C. E.	Black Mountain
Councill, J. B.	Salisbury
Covington, J. M., Jr.	Wadesboro
Covington, P. W.	Raleigh
Cox, B. F.	Palmerville
Cox, E. L.	Jacksonville
Cox, G. S.	Tabor
Cox, T. A.	Hertford
Craig, S. D.	Winston-Salem
Cranford, J. F.	Hendersonville
Cranmer, J. B.	Wilmington
Craven, F. C.	Ramseur
Craven, W. W.	Huntersville
Crocker, W. D.	Warsaw
Croom, A. B.	Maxton
Croom, G. H.	Maxton
Crowell, A. J.	Charlotte
Crowell, L. A.	Lincolnton
Crowell, S. M.	Charlotte
Crowell, W. H.	Whiteville
Crump, W. L.	Salisbury
Crumpler, Paul	Clinton
Currie, D. S.	Parkton
Currie, E. W.	Salisbury
Cummins, M. P.	Reidsville
Daligny, Chas.	Troy
Dalton, D. N.	Winston

Name.	*Address.*
Dameron, E. L.	Star
Daniel, N. C.	Oxford
Daniels, O. C.	Goldsboro
Daniels, R. L.	Swansboro
Davidson, J. E. S.	Charlotte
Davis, J. C.	Candler
Davis, J. F.	Glendon
Davis, T. W.	Winston-Salem
Davis, W. W.	Belmont
Dean, T. J.	Nashville
DeArmon, J. McC.	Charlotte
Dees, D. A.	Bayboro
Dees, R. E.	Greensboro
Dees, R. O.	Greensboro
Denny, W. W. (Hon.)	Pink Hill
Denson, H. A.	Bennett
Dick, J. V.	Gibsonville
Dickinson, E. T.	Wilson
Dickson, A. P.	Raeford
Dixon, D. R.	Rocky Mount
Dixon, G. E.	Hendersonville
Dodson, H. H.	Greensboro
Dosher, J. A.	Southport
Dowdy, G. E.	Winston
Drafts, A. B.	Hendersonville
Duffy, Leinster	New Bern
Duffy, R N.	New Bern
Duguid, J. A.	Vanceboro
Duncan, C. L.	Beaufort
Duncan, G. F.	High Point
Dunlap, L. V.	Albemarle
Dunn, W. L.	Asheville
Eagles, C. S.	Saratoga
Easley, P. S.	Statesville
Eason, Oscar	Princeton
Eckel, O. F.	Asheville
Eddleman, H. M.	Gastonia
Edgerton, J. L.	Hendersonville
Edwards, A. D.	Winston
Edwards, B. O.	Landis
Edwards, G. C.	Hookerton
Edwards, J. D.	Siler City
Ellen, C. J.	Battleboro, r.f.d.
Elias, L. W.	Asheville
Ellington, J. H.	Sandy Ridge
Ellington, S.	Wentworth
Ellis, R. C.	Shelby
English, E. S.	Brevard
Erwin, E. W.	Laurinburg
Eubanks, J. B.	Monroe
Evans, L. B.	Clarkton
Evans, W. E.	Rowland
Everett, A. C.	Rockingham
Everington, G. D.	Laurinburg
Faison, I. W. (Hon.)	Charlotte
Faison, J. M.	Faison
Faison, W. W. (Hon.)	Goldsboro
Faison, Yates	Charlotte
Farthing, L. E.	Pittsboro
Fassett, B W.	Durham

Name.	*Address.*
Fearing, Isaiah	Elizabeth City
Fearing, Zenas	Elizabeth City
Fearington, J. P.	Winston
Felts, R. L.	Durham
Fenner, E. F.	Henderson
Ferebee, E. B.	Raleigh
Ferguson, H. B.	Halifax
Ferrell, J. A.	Raleigh
Fields, B. T.	Greensboro
Fields, R. M.	Goldston
Finney, J. R.	Boonville
Fitzgerald, J. Y.	Indian Trail
Flack, R. E.	Spray
Fleming, M. J.	Hamilton
Fletcher, M. H. (Hon.)	Asheville
Flint, S. S.	Rural Hall
Flippin, J. M.	Mount Airy
Flippin, R. E. L.	Pilot Mountain
Flippin, S. T.	Siloam
Flow, J. W.	Kannapolis
Flowers, B. G.	Granite Falls
Flowers, C. A.	Columbia
Floyd, A. G.	Fair Bluff
Floyd, J. W.	Tabor
Floyd, L. D.	Cerro Gordo
Floyd, R. P.	Louisburg, r.f.d. No. 1
Foil, M. A.	Mount Pleasant
Fortune, A. F.	Greensboro
Fowlkes, J. I.	Hamlet
Fox, M. F. (Hon.)	Guilford College
Fox, T. I.	Franklinville
Frazer, H. T.	Asheville
Freeman, R. A. (Hon.)	Burlington
Frisbee, J. J.	Spring Creek
Furman, W. H.	Henderson
Gamble, J. R.	High Shoals
Gardener, G. D.	Asheville
Garren, R. H.	Bessemer City
Garrenton, C.	Bethel, Pitt Co.
Garrett, F. B.	Rockingham
Garrett, F. J.	Rockingham
Garrison, D. A.	Gastonia
Gary, R. H.	Murfreesboro
Gayle, E. M.	Morganton
Gentry, G. W.	Timberlake
George, D. S.	Marshallburg
Gibbin, R. L.	Charlotte
Gibbs, N. M.	New Bern
Gibson, J. S.	Gibson
Gibson, M. R.	Raleigh
Gill, J. N.	Weaverville
Gill, R. J.	Henderson
Gilmer, B. H.	Plymouth
Gilmer, C. S.	Greensboro, r.f.d. No. 6
Gilmore, W. D.	Mooresville
Gilreath, F. H.	North Wilkesboro
Ginn, T. L.	Goldsboro
Glenn, E. B.	Asheville
Glenn, H. F.	Gastonia
Glenn, L. N.	Gastonia
Gold, C. F.	Ellenboro

Name.	*Address.*
Goley, W. R.	Graham
Goley, W. R.	Shallotte
Goodman, A. B.	Lenoir
Goodman, E. G.	Lanvale
Goodwin, A. W.	Raleigh
Gouger, G. J.	Concord, r.f.d
Gove, A. M.	Greensboro
Grady, J. C.	Kenly
Grady, L. V.	Taylors
Graham, B. R.	Wallace
Graham, G. A.	Raeford
Graham, Joseph	Durham
Graham, W. A.	Charlotte
Grantham, W. L.	Lumberton
Gray, E. P.	Winston-Salem
Grayson, C. S.	High Point
Green, T. M.	Wilmington
Green, W. M.	Tarboro
Greene, A. W.	Ahoskie
Greene, J. B.	Asheville
Greenwood, B. H.	Waynesville
Greenwood, S. E.	Fletcher, r.f.d.
Grier, C. T.	Carthage
Grier, S. A.	Harrisburg
Griffin, C. F.	Winton
Griffin, C. O.	Bethel
Griffin, J. A.	Clayton
Griffin, T. A.	Clayton
Griffin, W. R.	Morganton
Griffith, F. W.	Asheville
Grigg, W. T.	Lawndale
Griggs, J. B.	Elizabeth City
Griggs, W. F.	Oriental
Griggs, W. T.	Poplar Branch
Guin, J. L.	Wilmington
Guin, L. E.	Waxhaw
Gunter, J. B.	McFarlan
Hackney, B. H.	Bynum
Halford, J. W.	Lillington
Hall, E. A.	Statesville
Hall, J. C.	Albemarle
Hall, J. K.	Richmond, Va.
Hall, Wright (Hon.)	Wilmington
Halsey, B. F.	Roper
Hammock, J. C.	Walkertown
Hammond, A. F.	Pollocksville
Hamrick, T. G.	Shelby
Hand, E. H.	Pineville
Hardee, P. R.	Stem
Harding, S. A.	Yadkinville
Harding, T. R.	Yadkinville
Hardison, M. H.	Creswell
Hardy, I. M.	Washington
Hargrove, R. H. (Hon.)	Robersonville
Hargrove, W. C.	Kinston
Harper, C. T.	Wilmington
Harper, J. H.	Snow Hill
Harrell, G. N.	Murfreesboro
Harrell, L. B.	Caroleen
Harrell, S. N.	Tarboro
Harris, A. G.	Fairfield
Harris, A. H.	Wilmington
Harris, D. W.	Maxton
Harris, E. B.	Rutherfordton
Harris, F. R.	Henderson
Harris, I. A. (Hon.)	Alexander
Harris, J. H.	Franklinton
Harrison, A. S.	Enfield
Harrison, Edmund	Greensboro
Harrison, J. S.	Elm City
Hartsell, F. E.	Big Lick
Hassell, J. L.	Cresswell
Hathaway, B. W.	Winfall
Hathcock, T. A.	Norwood
Hawes, S. J.	Dover
Hawley, F. O.	Charlotte
Hays, B. K.	Oxford
Hays, R. B.	Fayetteville
Haywood, Hubert	Raleigh
Haywood, H. B., Jr.	Raleigh
Hayworth, C. A.	Coleridge
Headen, W. E.	Morehead City
Heighway, S. C.	Murphy
Heilig, H. G.	Salisbury
Henderson, R. B.	Franklinton
Henderson, S. M.	Charlotte, r.f.d.
Hennessee, E. A.	Glen Alpine
Herbert, W. P.	Asheville
Herring, B. S.	Wilson
Hoster, J. R.	Knightdale
Hiatt, H. B.	High Point
Hicks, I. F.	Dunn
Hicks, C. S.	Durham
Hicks, Romeo	Henrietta
Hicks, W. N.	Durham
Highsmith, Charles	Dunn
Highsmith, J. F.	Fayetteville
Highsmith, Seavy	Fayetteville
Hill, C. D.	Durham
Hill, D. J.	Lexington
Hill, J. N.	Murphy
Hill, L. H. (Hon.)	Germanton
Hill, W. J.	Albemarle
Hill, W. L.	Lexington, r.f.d.
Hilton, J. J.	Greensboro
Hinnant, Melford	Micro
Hocutt, B. A.	Clayton
Hodges, J. M.	Cranberry
Hodgin, H. H.	Red Springs
Haggard, W. A.	Woodville
Holcomb, C. M.	Chestnut Ridge
Hollingsworth, E. M.	Mount Airy
Hollingsworth, R. E.	Mount Airy
Holloway, O. W.	North Side
Holloway, R. L.	West Durham
Holmes, A. B.	Council
Holmes, F. H.	Clinton
Holt, T. J.	Wise
Holt, W. P.	Duke
Holt, W. T.	McLeansville
Honnett, J. H.	Wilmington
Honnicutt, W. J.	Asheville
Hooks, T.	Smithfield

Name.	*Address.*
Hooper, J. O.	Saluda
Hoover, C. H.	Crouse
Hoover, H. R.	Wilson
Horton, W. C.	Raleigh
Horton, W. P.	North Wilkesboro
Houck, Albert	Morganton
Houser, E. A.	Fallston
Hovis, L. W.	Charlotte
Howe, W. B. W.	Hendersonville
Howell, W. L.	Ellerbe
Hoyle, H. B.	Montrose
Hubbard, C. C.	Farmer
Hudson, W. L.	Dunn
Hughes, George	Pollocksville
Hughes, G. R.	Pollocksville
Hughes, T. E.	Southport
Humphrey, T. E.	Tabor
Hunt, C. W.	Brevard
Hunt, J. F.	Casar
Hunter, H. H.	Pinetown
Hunter, J. V.	Asheboro
Hunter, L. W.	Charlotte
Hunter, Myers	Charlotte
Hunter, N. C.	Rockingham
Huston, J. W.	Asheville
Hyatt, F. C.	Greensboro
Hunter, M. C.	Huntersville
Hutchinson, S. S.	Hope Mills
Hyatt, H. O.	Kinston
Ingram, C. B.	Mount Gilead
Irwin, H. C.	Roanoke Rapids
Irwin, J. R. (Hon.)	Charlotte
Jackson, W. L.	Trinity
Jacocks, W. P.	Raleigh
James, W. D.	Laurinburg
Jarboe, Parran	Greensboro
Jenkins, C. L.	Raleigh
Jenkins, J. H.	Gastonia
Jennings, R. G.	Charlotte, r.f.d.
Jerome, J. R.	Wingate
Jett, S. G.	Reidsville
Jewett, R. D.	Winston
John, P.	Laurinburg
Johnson, Alice E.	Asheville
Johnson, B. C.	Bunn
Johnson, N. M. (Hon.)	Durham
Johnson, R. W.	Apex
Johnson, W. A.	Reidsville
Johnson, W. C.	Canton
Johnson, W. M.	Winston-Salem
Johnston, J. B.	Old Fort, r.f.d. No. 1
Jonas, J. F.	Marion
Jones, A. D.	Granite Falls
Jones, A. G.	Walnut Cove
Jones, C. M.	Grimesland
Jones, E. H.	Swan Quarter
Jones, R. D.	New Bern
Jones, W. M.	Greensboro
Jordan, A. C.	Durham
Jordan, C. S.	Asheville
Jordan, G. E.	Greensboro
Jordan, T. M.	Raleigh
Jordan, W. S.	Fayetteville
Joyner, T. O.	Severn
Juat, Francis	Raeford
Judd, E. C.	Raleigh
Julian, C. A.	Thomasville
Jurney, P. C.	Turnersburg
Justice, G. B.	Marion
Kafer, Oswald	Edward
Kapp, H. H.	Winston
Kellum, W. D.	Ahoskie, r.f.d. No. 3
Kennedy, J. B.	Goldsboro
Kent, A. A.	Lenoir
Kernodle, J. L.	Elon College
Kerns, T. C.	Durham
Kerr, J. D., Jr.	Clinton
Kerr, J. E.	Lilesville
Killian, R. B.	Lincolnton
King, M. N.	Brevard
King, M. N.	Durham
King, P. M.	Charlotte
King, R. M.	Concord
Kinsman, H. F.	Hamlet
Kirby, G. S.	Marion
Kirk, W. R.	Hendersonville
Kirkman, T. A.	Siler City
Kirkpatrick, L. R.	Maxton
Kizer, W. C.	Reepsville
Knight, J. B. H.	Williamston
Knight, W. P.	Greensboro
Knox, A. W.	Raleigh
Koonce, S. E.	Wilmington
Kornegay, L. W.	Rocky Mount
Lafferty, J. S.	Concord
Lafferty, R. H.	Charlotte
Lamm, I. W.	Lucama
Landen, J. F.	Chinquapin
Lane, J. L.	Rocky Mount
Lapham, Mary E.	Highlands
Lassiter, E. W.	Rich Square
Laster, P. D.	Monecure, r.f.d. No. 1
Laton, J. F.	Albemarle
Lattimore, E. B.	Shelby
Laughinghouse, C. O'H.	Greenville
Lawrence, C. S.	Winston-Salem
Leak, J. J.	Dan River
Ledbetter, A. E.	Greensboro
Ledbetter, J. M.	Rockingham
Lee, L. V.	Lattimore
Lee, R. E.	Goldsboro
Leeper, D. H.	Hiddenite
Leggett, K.	Hobgood
Leinback, R. F.	Charlotte
Leonard, G. F.	Lexington
Lewis, G. W.	Wilson
Lewis, H. W.	Jackson
Lewis, R. H.	Raleigh
Liles, N. P.	Elizabethtown
Lilly, J. M.	Fayetteville

Name.	*Address.*
Linville, A. Y.	Winston-Salem
Lister, J. L.	Jackson
Livingston, Everitte	Gibson
Lloyd, B. B.	Venable
Lockett, E. A.	Winston-Salem
Long, B. L.	Glen Alpine
Long, B. L.	Hamilton
Long, E. F.	Denton
Long, E. M.	Oak City
Long, G. W. (Hon.)	Graham
Long, H. F.	Statesville
Long, J. W. (Hon.)	Greensboro
Long, T. W. M.	Roanoke Rapids
Long, V. McK.	Winston
Long, W. T.	Roxboro
Lott, H. S.	Winston-Salem
Love, W. J. (Hon.)	Wilmington
Lovelace, T. B.	Henrietta, r.f.d.
Lovill, R. J.	Dobson
Lowery, J. R.	Raleigh
Lucas, W. H. G.	White Oak
Lumsden, W. J.	Elizabeth City
Lyday, A. E.	Penrose
Lyday, C. E.	Rosman
Lyle, S. H.	Franklin
Lynch, J. M.	Asheville
Lyon, E. H.	Bahama
MacConnell, J. W.	Davidson
MacIntosh, L. C.	Henderson
MacKethan, D. G.	Fayetteville
MacKethan, J. A.	Fayetteville
MacNider, W. DeB.	Chapel Hill
Macon, G. H.	Warrenton
Macon, P. J.	Warrenton
Magruder, L. F.	Albemarle
Mallett, E. P.	Hendersonville
Malloy, S. A.	Yanceyville
Malone, J. E.	Louisburg
Mann, J. A.	Fairfield
Mann, J. E.	Lake Landing
Mann, Stuart	Moyock
Manning, I. H.	Chapel Hill
Manning, J. M.	Durham
Marriner, N. B.	Belhaven
Marriott, H. B.	Battleboro
Martin, J. H.	Rockford, r.f.d. No. 1
Martin, S. L.	Leaksville
Matheson, J. P.	Charlotte
Matheson, R. C.	Madison
Mathews, J. O.	Clinton
Matthews, J. C.	Charlotte
Matthews, J. H.	Vass
Matthews, J. M.	Mount Pleasant
Matthews, M. L.	Cameron
Matthews, Thomas A.	Castalia
Maxwell, C. S.	Beaufort
Maxwell, H. B.	Whiteville
Maynard, J. D.	Knott's Island
McAllister, William	Middleburg
McAnally, W. J.	High Point
McBrayer, L. B.	Sanatorium
McBrayer, T. E.	Shelby, r.f.d. No. 1
McBryde, M. H.	Reidsville
McCain, H. W.	High Point
McCall, A. C.	Rocky Mount
McCampbell, John	Morganton
McCanless, W. L.	Danbury
McCanless, W. V.	Danbury
McClelland, J. O.	Maxton
McCombs, C. J.	Gastonia
McCotter, S. E.	Bayboro
McCoy, T. M.	Mount Holly
McCracken, C. M.	Fairview
McCracken, J. R.	Waynesville
McCullers, J. J. L.	McCullers
McDaniel, C. B.	Rutherfordton
McDonald, A. A.	Jackson Springs
McDonald, A. D. (Hon.)	Wilmington
McFadyen, H. L.	Waynesville
McFayden, P. R.	Concord
McGeachey, R. S.	Raleigh
McGee, J. W.	Raleigh
McGehee, J. W.	Reidsville
McGougan, J. V.	Fayetteville
McIntosh, D. M.	Old Fort
McIver, E. M.	Jonesboro
McIver, Lynn	Sanford
McKaig, F. T.	Andrews
McKay, H. W.	Charlotte
McKay, J. F.	Buie's Creek
McKay, J. L.	Kings Mountain
McKee, J. S.	Raleigh
McKenzie, W. W.	Salisbury
McLaughlin, C. S.	Charlotte
McLaughlin, J. E.	Statesville
McLean, Allen	Wagram
McLean, J. W.	Godwin
McLean, Peter	Laurinburg
McLean, R. H.	Dunn, r.f.d. No. 6
McLemore, G. A.	Clayton
McLeod, A. H.	Aberdeen
McLeod, G. M.	Carthage
McMahan, J. W.	Crestmont
McManas, W. L.	Bonlee
McMillan, B. F.	Red Springs
McMillan, J. L.	Red Springs
McMillan, J. M.	Hemp
McMillan, R. D.	Red Springs
McMillan, W. D. (Hon.)	Wilmington
McMullan, J. H.	Edenton
McMullan, Oscar	Elizabeth City
McNairy, C. B.	Lenoir
McNeill, J. W. (Hon.)	Fayetteville
McPhail, L. D.	Rockingham
McPhaul, W. A.	Lumberton
McPherson, C. W.	Burlington
McPherson, R. G.	Saxapahaw
McPherson, S. D.	Durham
Meadows, E. B.	Oxford
Meadows, W. J.	Greensboro
Mease, J. H.	Canton
Mebane, W. N.	Greensboro
Meisenheimer, T. F.	Morven

Name.	*Address.*
Melvin, W. C.	Linden
Mercer, W. P.	Elm City
Meroney, B. B.	Murphy
Merrimon, L. A.	Asheville
Merritt, J. H.	Woodsdale
Michaux, E. R.	Greensboro
Miles, M. S.	Greensboro
Miles, P. W.	Greensboro
Miller, J. F.	Goldsboro
Miller, O. O.	Stackhouse
Minor, C. L.	Asheville
Misenheimer, C. A. (Hon.)	Charlotte
Mitchell, G. W.	Macclesfield
Mitchell, J. H.	Ahoskie
Mitchell, P. H.	Ahoskie
Mitchell, W.	Lewiston
Mitchell, W. F.	Shelby
Mock, F. L.	Lexington, r.f.d. No. 3
Moir, S. A.	Francisco
Monk, G. M.	Spencer
Monk, H. D.	Trenton
Monk, H. L.	Spencer
Munroe, J. P.	Sanford
Munroe, W. A.	Sanford
Montgomery, H. M.	Burlington
Moore, A. W.	Charlotte
Moore, C. E.	Greensboro
Moore, C. E.	Wilson
Moore, E. G.	Elm City
Moore, F. T.	Benson
Moore, H. T.	Wilmington
Moore, J. C.	Mortimer
Moore, J. L.	Wendell
Moore, J. N.	Marshall
Moore, K. C.	Wilson
Moore, Oren	Charlotte
Moore, T. V.	Acme
Moore, W. B.	Smith
Moore, W. H.	Wilmington
Moore, W. J.	Asheboro
Morphew, M. F.	Marion
Morris, E. C.	Asheville
Morris, E. R.	Asheville
Morris, G. B.	Mount Olive
Morris, J. A.	Oxford
Morrow, W. C.	Andrews
Morse, L. B.	Hendersonville
Moseley, C. W.	Greensboro
Moseley, Z. V.	Kinston
Moser, W. D.	Burlington
Mudgett, W. C.	Southern Pines
Munns, L. A.	Smithfield
Munroe, J. P.	Charlotte
Murphy, J. G.	Wilmington
Murphy, W. B.	Snow Hill
Myerburg, I. W.	Pine Level
Myers, J. Q.	Charlotte
Naff, G. N.	Garysburg
Nalle, B. C.	Charlotte
Nance, G. B.	Monroe
Nash, J. F.	Charlotte
Neal, J. W.	Meadows
Neal, J. W.	Monroe
Nelson, R. J.	Robersonville
Nesbit, C. T.	Wilmington
Newbern, J. M.	Jarvisburg
Newby, G. E.	Hertford
Newell, H. A.	Louisburg
Newell, J. O.	Nashville
Newell, L. B.	Charlotte
Nichols, A. A.	Sylva
Nichols, A. F.	Roxboro
Nichols, A. S.	Sylva
Nichols, C. G.	Roxboro
Nichols, R. E.	Gorman
Nicholson, B. M.	Ringwood
Nicholson, J. L. (Hon.)	Richlands
Nicholson, J. L.	Washington
Nicholson, J. T.	Bath
Nicholson, P. A.	Washington
Nicholson, S. T.	Washington
Nisbet, W. O.	Charlotte
Noble, R. J. (Hon.)	Selma
Nobles, J. E. (Hon.)	Greenville
Norman, G. W.	Greensboro
Norman, J. S.	Bladenboro
Norris, Henry	Rutherfordton
Northington, J. M.	Boardman
Oates, George	Grover
Ogburn, H. H.	Greensboro
Olive, P. W.	Wade
Olive, W. W.	Durham
Orr, C. C.	Asheville
Orr, N. A.	Belmont
Orr, P. B.	Asheville
Paddison, J. R.	Kernersville
Page, B. W.	Lumberton
Palmer, B. H.	Shelby
Palmer, M. C.	Tryon
Palmer, R. W.	Gulf
Paquin, Paul	Asheville
Parker, C. G.	Woodland
Parker, G. E.	Benson
Parker, J. R.	Goldsboro
Parrott, A. D.	Kinston
Parrott, J. M.	Kinston
Parrott, W. T.	Kinston
Pate, F. J.	Winston-Salem
Pate, W. T.	Gibson
Patrick, L. N.	Charlotte
Patterson, J. A.	Concord
Patterson, J. F.	New Bern
Patterson, Reid	Charlotte
Payne, R. L.	Monroe
Peacock, J. W.	Thomasville
Peck, E. J.	Hot Springs
Peeler, C. N.	Charlotte
Peete, C. H.	Warrington
Pegram, R. W. S.	Wilkesboro, r.f.d. 2
Pemberton, W. D.	Concord
Pendleton, A. S.	Raleigh

Name.	*Address.*
Penny, J. A. J.	Vanteen
Pepper, J. K.	Winston-Salem
Perkins, D. R.	Marshville
Perkins, F. E.	Henderson
Perry, M. P.	Macon
Person, J. B.	Selma
Person, T. E.	Stantonsburg
Peterson, C. A.	Spruce Pine
Petrie, R. W.	Charlotte
Petteway, G. H.	Charlotte, r.f.d.
Pfohl, S. F.	Winston-Salem
Pharr, T. F. (Hon.)	Concord
Pharr, W. W.	Charlotte
Phifer, E. W.	Morganton
Phillips, C. H.	Fullers
Phillips, J. J.	Tarboro
Phillips, M. D.	Dalton
Piekett, J. A.	Burlington
Pierce, S. B.	Weldon
Pittman, R. L.	Fayetteville
Pitts, I. W.	Lenoir
Pollard, W. B.	Winton
Pollock, Raymond	New Bern
Pope, H. T.	Lumberton
Potter, W. T.	Edward
Powell, H. H.	Stantonsburg
Powell, J. L.	Harrellsville
Powell, R. A.	Fayetteville
Powers, J. B., Sr.	Wake Forest
Pressley, G. M.	Charlotte
Pridgen, C. L.	Kinston
Primrose, R. S.	New Bern
Prince, D. M. (Hon.)	Laurinburg
Pritchard, A. T.	Asheville
Pritchard, G. L.	Vanceboro
Pritchard, J. L.	Windsor
Proffitt, T. J.	Elk Park
Puett, B. V.	Dallas
Pugh, C. H.	Stanly
Purefoy, G. W.	Asheville
Query, R. A.	Charlotte, r.f.d. No. 3
Quickel, T. C.	Gastonia
Quillen, E. B.	Rocky Mount
Raby, J. C.	Leggett
Ramseur, G. A.	China Grove
Rankin, S. W.	Concord
Rankin, W. S.	Raleigh
Ranson, J. L.	Pineville, r.f.d. No. 15
Ray, J. B.	Leaksville
Ray, O. L.	Raleigh
Reaves, C. R.	Greensboro
Reaves, W. P.	Greensboro
Redding, A. H.	Coleridge
Reece, J. M.	Elkin
Reed, D. H.	Lucama
Reedy, Howard	Rowland
Reed, J. F.	Concord
Reeves, A. F.	Asheville
Register, E. C.	Charlotte
Register, F. M.	Tillery
Reid, G. P.	Forest City
Reid, J. W.	Lowell
Reid, R. M.	Gastonia
Reid, W. K.	Charlotte
Reitzell, C. E.	High Point
Reives, J. T.	Greensboro
Reynolds, C. V.	Asheville
Reynolds, T. F.	Canton
Rheim, J. F.	New Bern
Rhodes, J. S.	Williamston
Rhyne, R. E.	Mount Holly
Rich, J. C.	Candler
Richardson, W. J.	Greensboro
Ricks, L. E.	Fairmont
Riddle, J. B.	Morganton
Riggsbee, A. E.	Morrisville
Ring, J. W.	Elkin
Ringer, P. H.	Asheville
Ritter, F. W.	Moyock
Roberson, Charles	Greensboro
Roberson, Foy	Durham
Roberson, M.	Durham
Roberts, Frank	Marshall
Roberts, H. C.	Coats
Robinson, F.	Lowell
Robinson, Harvey	Reidsville
Robinson, M. E.	Goldsboro
Robinson, Newton	Elizabethtown
Rodman, J. C.	Washington
Rogers, J. R.	Raleigh
Rogers, W. A.	Franklin
Root, A. S.	Raleigh
Rose, A. H.	Smithfield
Ross, C. E.	Morganton
Ross, G. F.	Greensboro
Ross, G. H.	East Durham
Rosser, R. G.	Broadway
Rowe, H. B.	Mount Airy
Rowe, R. H.	Bessemer City
Royal, B. F.	Morehead City
Royall, M. A.	Elkin
Royster, H. A.	Raleigh
Royster, S. S.	Shelby
Royster, T. H.	Tarboro
Royster, W. I. (Hon.)	Raleigh
Rucker, A. A.	Rutherfordton
Russell, E. R.	Asheville
Russell, F. H.	Wilmington
Russell, J M.	Canton
Russell, S. L.	Yadkinville
Saddler, D. B.	Vineland
Saliba, John	Elizabeth City
Saliba, M. M.	Wilson
Salley, E. M.	Saluda
Salmons, L. R.	Elkin
Sanderford, J. F.	Creedmoor
Saunders, J. H.	Williamston
Sawyer, C. J.	Windsor
Sawyer, C. W.	Elizabeth City
Sawyer, W. W.	Elizabeth City
Schallert, P. O.	Winston-Salem

Name.	*Address.*
Schaub, O. P.	Winston-Salem
Schonwald, J. L. (Hon.)	Wilmington
Schoonover, R. A.	Greensboro
Schubert, L. H.	Aurora
Sevier, D. E.	Asheville
Sevier, J. T.	Asheville
Sexton, C. H.	Dunn
Shafer, I. E.	Gold Hill
Shaffner, T. F., Sr. (Hon.)	Winston-Salem
Shamburger, J. B.	Star
Sharpe, F. L.	Statesville
Shaw, W. G.	Wagram
Shields, H. B.	Carthage
Shore, C. A.	Raleigh
Shore, T. W.	Boonsville
Shull, J. R.	Cliffside
Sigmon, F. G.	Spencer
Sikes, G. L.	Salemburg
Sikes, G. T.	Grissom
Siler, F. L.	Franklin
Simmons, J. O.	Charlotte
Simpson, J. R.	Conetoe
Sink, C. S.	N. Wilkesboro
Slate, W. C.	Danbury
Sloan, Henry	Ingold
Sloan, H. L.	Lincolnton
Sloan, J. M.	Gastonia
Slocum, R. B.	Wilmington
Sloop, E. H.	Crossmore
Sloop, M. M.	Crossmore
Smart, J. B.	Forest City
Smith, A. T.	Greensboro
Smith, B. R.	Asheville
Smith, F.	Linden
Smith, G. A.	Black Creek
Smith, J. B.	Pilot Mountain
Smith, J. McN.	Rowland
Smith, Owen	Asheville
Smith, O. S.	Scotland Neck
Smith, R. A. (Hon.)	Goldsboro
Smith, R. W.	Hertford
Smith, S. A.	Bolton
Smith, W. F.	Chadbourn
Smithwick, J. E.	Jamesville
Smoot, J. E.	Concord
Smoot, M. L.	Fayetteville
Snipes, E. P.	Jonesboro
Somers, L. P.	Osbornville
Sorrell, L. P.	Raleigh
Spainhour, E. H.	Winston-Salem
Speight, J. W.	Roper
Speight, R. H., Sr. (Hon.)	Whitakers, r.f.d. No. 1
Spencer, F. B.	Salisbury
Spencer, W. O.	Winston-Salem
Spoon, O. A.	Greensboro
Sprinkle, C. N.	Marshall
Spruill, J. L.	Columbia
Squires, J. W.	Charlotte
Street, M. E.	Glendon
Stack, R. E.	Bakersville

Name.	*Address.*
Staley, S. W.	Rocky Mount
Stamps, Thomas	Lumber Bridge
Stancell, R. H.	Margarettsville
Stancell, William W.	Raleigh
Stanton, D. A.	High Point
Staton, L. L.	Tarboro
Stephens, W. L.	Indiantown
Stephenson, M. R.	Seaboard
Stevens, J. A.	Clinton
Stevens, M. L.	Asheville
Stevens, S. A.	Monroe
Stewart, H. D.	Monroe
Stokes, J. E.	Salisbury
Stone, W. M.	Dobson
Storie, J. G.	Proctor
Strickland, E. F.	Bethania
Strickland, J. A.	Zebulon
Strickland, J. T.	Nashville
Strickland, W. J.	Moncure
Stringfield, S. L.	Waynesville
Stringfield, Thomas	Waynesville
Strong, C. M.	Charlotte
Strosnider, C. F.	Mount Olive
Stroud, O. B.	Ore Hill
Strowd, W. A.	Rougemont
Summer, T. W.	Fletcher
Summerell, E. N. (Hon.)	China Grove, r.f.d.
Summers, C. L.	Winston-Salem
Sumner, W. J.	Randleman
Sutton, C. W.	Richlands
Sutton, J. R.	Elk Park
Swann, J. F.	Semora
Sweaney, John	Leaksville
Swett, W. P.	Southern Pines
Swindell, C. L.	Wilson
Swindell, Walter	Scranton
Tankersley, J. W.	Greensboro
Tate, C. S.	Ramseur
Tate, W. C.	Banner's Elk
Tayloe, A. K.	Washington
Tayloe, D. T.	Washington
Tayloe, Josh.	Washington
Taylor, B. C.	Stanley
Taylor, I. M. (Hon.)	Morganton
Taylor, J. T.	Madison
Taylor, T. G.	Leaksville
Taylor, W. I.	Kerr
Taylor, W. L.	Stovall
Taylor, W. S.	Mount Airy
Teague, R. J.	Durham
Templeton, J. M.	Cary
Tennent, G. S.	Asheville
Terrell, A. J.	Black Mountain
Terry, J. R.	Lexington
Terry, P. R.	Asheville
Terry, W. C.	Hamlet
Thames, John	Wilmington
Thigpen, W. J.	Tarboro
Thomas, G. G. (Hon.)	Wilmington
Thomas, W. N.	Oxford

Name.	*Address.*
Thompson, A. F.	Troy
Thompson, Cyrus	Jacksonville
Thompson, C. D.	Lincolnton
Thompson, Fred.	Pine Bluff
Thompson, J. R.	Bostic, r.f.d. No. 1
Thompson, N. A.	Lumberton
Thompson, S. W.	Neuse
Thompson, W. A.	Rutherfordton
Thurston, Asa	Taylorsville
Tilson, J. C.	Marshal
Timberlake, R. E.	Youngsville
Townsend, M. L.	N. Wilkesboro
Tranthahm, H. L. (Hon.)	Salisbury
Trantham, H. L. (Hon.)	Salisbury
Tucker, H. McK.	Raleigh
Tucker, J. H.	Charlotte
Tull, Henry (Hon.)	Kinston
Turlington, H. C.	Cooper, r.f.d.
Turner, H. G.	Raleigh
Turner, J. A.	High Point
Turner, J. M.	N. Wilkesboro
Turner, J. P.	Greensboro
Tuttle, A. F.	Spray
Tuttle, R. G.	Walnut Cove
Twitty, J. C.	Rutherfordton
Underhill, H. P.	Wendell
Underwood, O. E.	Roseboro
Upchurch, C. G.	Apex, r.f.d.
Upchhurch, R. T.	Henderson
Utley, H. H.	Benson
Valk, A. D.	Winston-Salem
Van Poole, C. M. (Hon.)	Salisbury
Vernon, J. W.	Morganton
Vestal, W. J.	Lexington
Vick, G. D.	Selma
VonRuck, K.	Asheville
VonRuck, S. H.	Asheville
Wadsworth, W. H.	Concord
Wakefield, H. A.	Charlotte
Wakefield, W. H.	Charlotte
Walker, C. E.	Charlotte
Walker, H. D.	Elizabeth City
Walker, L. A.	Burlington
Walker, W. E.	Burlington
Wall, R. L.	Winston-Salem
Wallace, J. W.	Concord
Wallis, W. J.	Brevard
Walters, C. M.	Union Ridge
Ward, F. A.	Ryland
Ward, J. E.	Robersonville
Ward, V. A.	Robersonville
Ward, W. H. (Hon.)	Plymouth
Warlick, E. S.	Morganton
Warren, J. W.	Edenton
Warren, R. L.	Dunn
Warren, W. E.	Williamston
Washburn, B. E.	Nashville
Watkins, F. B.	Morganton
Watkins, G. S.	Oxford

Name.	*Address.*
Watson, Leon	Broadway
Watson, Walter	New Bern
Watts, R. E.	Oriental
Way, J. H.	Waynesville
Weaver, H. B. (Hon.)	Asheville
Webb, B. G.	Andrews
Webb, L. H.	Chapel Hill
Webb, S. E.	Draper
Wellborn, W. R.	Elkin
Wessell, J. C.	Wilmington
West, A.	Walstonburg, r.f.d.
West, R. M.	Salisbury
West, T. M.	Fayetteville
Wharton, C. R.	Ruffin
Wharton, L. D.	Smithfield
Whims, T. G.	Lasker
Whisnant, A. M.	Charlotte
Whitaker, A. C.	Julian
Whitaker, F. A.	Kinston
Whitaker, F. S.	Kinston
Whitaker, H. H.	Nashville
Whitaker, J. D.	Raleigh
Whitaker, R. A.	Kinston
White, J. W.	Wilkesboro
Whitfield, W. C.	Griffin
Whitehead, J. P.	Rocky Mount
Whitehead, J. W. (Hon.)	Salisbury
Whiteside, Margaret	Charlotte
Whitley, A. D. N.	Unionville
Whitley, D. P.	Albemarle
Whittington, J. B.	Winston-Salem
Whittington, W. P. (Hon.)	Asheville
Whittington, W. W.	Snow Hill
Wiggins, J. C.	Winston-Salem
Wilcox, J. W.	Laurel Hill
Wilkerson, C. B.	Apex
Wilkerson, C. E.	Randleman
Wilkins, R. B.	Duke
Wilkins, S. A.	Dallas
Williams, A. F.	Wilson
Williams, B. B.	Greensboro
Williams, C. B.	Elizabeth City
Williams, J. A.	Greensboro
Williams, J. D.	Lewisville
Williams, J. H. (Hon.)	Asheville
Williams, J. M.	Warsaw
Williams, J. W.	Everitts
Williams, L. L.	Cullowhee
Williams, T. G.	Turkey
Williams, T. R.	Venable
Willis, A. P.	Canton
Wilson, A. R. (Hon.)	Greensboro
Wilson, F. G.	Gastonia
Wilson, J. E.	Canton, r.f.d.
Wilson, R. B.	Newton Grove
Windley, R. E.	Swan Quarter
Wiseman, C. B.	Henrietta
Witherbee, W. D.	Charlotte
Withers, S. M.	Chadbourn
Witherspoon, B. J.	Charlotte
Woltz, J. L.	Mount Airy
Wood, E. J.	Wilmington

Name.	*Address.*
Wood, J. W.	Shelby, r.f.d. No. 3
Woodard, C. A.	Durham
Woodson, C. W.	Salisbury
Woody, S. B.	Spring Creek
Wooten, A. M.	Pinetops
Wrenn, Frank	Siler City
Wright, J. D.	Lincolnton
Wright, S. G.	Elizabeth City, r.f.d.
Wright, T. H.	Charlotte
Yarborough, R. F.	Louisburg
Yokeley, R. V.	Lexington
York, A. A.	Linwood, r.f.d. No. 2
York, H. B.	Williamston
Young, J. J.	Clayton
Young, L. B.	Rolesville
Yow, I. A.	Georgeville
Zimmerman, R. U.	Lexington

List of Members for 1914 by Counties

NOTE.—Every physician in the State whose name we could secure has had an opportunity to supply correct information as to his name, postoffice, academic and medical education, date of State license and date the State Society was joined. A few did not take advantage of the opportunity, however. Any one finding an error should report it to the Secretary of the Society, so that the report for next year will be correct.

ALAMANCE COUNTY SOCIETY.

Name and Address	*Licensed*	*Joined State Society*
President, W. E. Walker, Burlington	1903	1904
Med. Coll. of Va., 1903.		
Secretary, William D. Moser, Burlington	1910	1910
N. C. Med. Coll., 1910.		
Anderson, C. A., Burlington	1893	1896
P. and S., Balto., 1901.		
Freeman, R. A. (Hon.), Burlington	1879	1904
Washington Univ., Balt., 1879.		
Goley, W. R., Graham	1885	1893
P. and S., Balto., 1885.		
Kernodle, J. L.	....	....
Elon. Coll.		
Long, G. W. (Hon), Graham	1877	1877
Univ. of Penn., 1874.		
McPherson, C. W., Burlington	....	....
McPherson, R. G., Saxapahaw	....	....
Montgomery, H. M., Burlington	....	....
Pickett, J. A., Burlington	....	....
Walker, L. A., Burlington	1899	....
Univ. Coll. of Med., Va., 1898.		
Walters, C. M., Union Ridge	1908	1908
Univ. of Med., 1908.		

ANSON COUNTY SOCIETY.

President	....	....
Secretary, J. M. Covington, Jr., Wadesboro	1899	1899
Medico Chir. Coll., Phila., 1899.		
Bennett, J. H., Wadesboro	1894	....
Univ. of Md., 1894.		
Chapman, G. M., Morven	1904	1904
P. and S., Balto., 1900.		
Covington, P. W., Raleigh	....	....
Gunter, J. B., McFarlan	1882	1913
Jefferson.		
Kerr, J. E., Lilesville	1897	1897
Univ. of Md., 1896.		
Meisenheimer, T. F., Morven	1880	1880
Univ. of N. Y., 1880.		

AVERY COUNTY SOCIETY.

President	....	....
Secretary, M. M. Sloop, Crossmore	....	....
Bryant, C. G., Newland	....	....
Buchanan, C. L., Plumtree	1910	1911
Tenn. Med. Coll., 1910.		

Name and Address	*Licensed*	*Joined State Society*
Hodges, J. M., Cranberry Univ. of Md., 1904.	1906	....
Proffitt, T. J., Elk Park Univ. of Louisville, 1903.	1903	....
Sloop, E. H., Crossnore N. C. Med. Coll., 1905. Jefferson Med. Coll., 1908.	1905	1909
Sutton, J. R., Elk Park Univ. of the South, 1904.	1909	1911
Tate, W. C., Banners Elk Tenn. Med. Coll., 1908.	1909	1912

BEAUFORT COUNTY SOCIETY.

President, H. W. Carter, Washington Univ. of Va., 1895.	1895	1910
Secretary, J. C. Rodman, Washington Bellevue Med., 1892.	1892	1895
Blount, J. G., Washington Bellevue Med., 1892.	1892	1892
Hardy, I. M., Washington Med. Coll. of Va., Richmond, 1901.	1902	1902
Hunter, H. H., Pinetown Med. Coll. of Va., Richmond, 1901.	1901	1904
Kafer, Oswald, Edward Univ. of Md., 1905.	1905	....
Nicholson, J. L., Washington Univ. of Md., 1904.	1904	....
Nicholson, J. T., Bath P. and S., Balto., 1885.	1885	1885
Nicholson, P. A., Washington P. and S., Balto., 1889.	1889	1890
Nicholson, S. T., Washington P. and S., Balto., 1881.	1885	1902
Potter, W. T., Edward Med. Coll. of Va., Richmond, 1910.	1910	1910
Tayloe, A. K., Washington Univ. Coll. of Med., Richmond, Va., 1897.	1896	1896
Tayloe, D. T., Washington Bellevue Hosp. Med. Coll., 1885.	1885	1885
Tayloe, Josh., Washington Bellevue.	1892	....

BERTIE COUNTY SOCIETY.

President	....	....
Secretary, J. L. Pritchard, Windsor P. and S., Balto., 1906.	1906	1906
Mitchell, W., Lewiston Univ. of Md., 1895.	1896	....
Sawyer, C. J., Windsor P. and S., Balto., 1895.	1895	1897

BLADEN COUNTY SOCIETY.

President	....	....
Secretary, N. P. Liles, Elizabethtown S. C. Med. Coll., 1911.	1911	....
Clark, G. L. (Hon.), Clarkton Univ. of N. Y., 1876.	....	1904

Name and Address	*Licensed*	*Joined State Society*
Evans, L. B., Clarkton	1900	1904
Univ. Coll. of Med., 1900.		
Holmes, A. B., Council	1910	....
Jefferson, 1910.		
Lucas, W. H. G., White Oak	....	1875
Univ. of Phila., 1870.		
Norman, J. S., Bladenboro	1911	....
Univ. of Md., 1909.		
Robinson, N., Elizabethtown	....	1904
Univ. of Penn., 1869.		

BRUNSWICK COUNTY SOCIETY.

President, E. C. Goodman, Lanvale	1891	1892
Univ. of Md., 1891.		
Secretary, J. A. Dosher, Southport	1903	1903
Balto. Med. Coll., 1903.		
Hughes, T. E., Southport	....	....
Goley, W. R., Shallotte	1901	....
Univ. Coll. Med., Richmond, Va., 1901.		

BUNCOMBE COUNTY SOCIETY.

President, P. H. Ringer, Asheville	1906	1907
P. and S., N. Y., 1904.		
Secretary, G. S. Tennent, Asheville	1894	1894
N. C. Med. Coll., 1894.		
Adams, J. L., Asheville	1910	1913
Jefferson, 1910.		
Ambler, C. P., Asheville	1890	1891
West. Reser., 1889.		
Anderson, J. G., Asheville	1906	1908
Univ. of N. C., 1906.		
Archer, I. J., Black Mountain	1905	1906
Northwestern, 1896.		
Ballard, A. M., Asheville	1889	1904
Harvard, 1868.		
Battle, S. W., Asheville	1887	1887
Bellevue, N. Y., 1875.		
Briggs, H. H., Asheville	1901	1903
Yale, 1897.		
Brookshire, H. G., Leicester	1905	1906
N. C. Med. Coll., 1905.		
Brownson, W. C., Asheville	1885	1896
Univ. of N. Y., 1878.		
Buckner, J. M., Swannanoa	1909	1912
Univ. of N. C., 1908.		
Buckner, R. G., Asheville	1907	1908
Univ. of Ark., 1897.		
Callaway, A. W., Asheville	1899	1904
Chicago Med. School; Harvard Med. School, 1895.		
Carroll, J. L., Hookerton	1905	1905
Louisville Med., 1905.		
Carroll, R. S., Asheville	1905	1905
Sines, 1893, Rush., 1897.		
Cheesborough, T. P., Asheville	1891	1899
Univ. of N. Y., 1891.		
Clemenger, F. J., Asheville	1903	1903
Univ. of Denver Med. Dept., 1902.		

Name and Address	*Licensed*	*Joined State Society*
Cocke, C. H., Asheville	1912	1913
Cornell, 1905.		
Cocke, J. E., Asheville	1905	1905
Louisville Med., 1905.		
Colby, C. D. W., Asheville	1909	1909
Army Med. School, 1895; Med. Dep. Univ of Mich, 1893.		
Costello, M. J., Asheville	1909	1911
Medico Chir., Phila., 1896.		
Cotton, C. E., Black Mountain	1901	1901
Northwestern, 1889.		
Davis, J. C., Chandler	1909	1911
Atlanta School of Med., 1901.		
Dunn, W. L., Asheville	1900	1900
Univ. of Mich., 1891.		
Eckel, O. F., Asheville	1907	1908
Med. Coll. of S. C., 1906.		
Lewis, W. E., Asheville	1906	1906
Columbia Univ., 1903.		
Fletcher, M. H. (Hon.), Asheville	1881	1881
Bellevue, N. Y., 1881.		
Frazer, H. T., Asheville	1908	1908
Coll. Phys., N. Y., 1901.		
Gardener, G. D., Asheville	1908	1908
Lincoln Memorial, 1908.		
Gill, J. N., Weaverville	1894	1892
Vanderbilt Univ., 1889.		
Glenn, E. B., Asheville	1896	1899
Jefferson Med., 1896.		
Greene, J. B., Asheville	1910	1911
Univ. of Va., 1893.		
Griffith, F. W., Asheville	1911	1912
Johns Hopkins, 1906.		
Harris, I. A. (Hon.)	1885	1881
Jefferson.		
Herbert, W. P., Asheville	1910	1911
Univ. of Va., 1907.		
Hunnicutt, W. J., Asheville	1908	1908
Univ. of Tenn., 1895.		
Huston, J. W., Asheville	1912	1913
Rush, 1904.		
Johnson, Alice E., Asheville	1905	1907
Woman's Med., Pa., 1905.		
Jordan, C. S., Asheville	1891	1899
Univ. of N. Y., 1890.		
Lynch, J. M., Asheville	1912	1913
Univ. of Md., 1904.		
McBrayer, L. B., Asheville	1891	1899
Louisville Med., 1889.		
McCracken, C. M., Fairview	1896	1904
N. C. Med. Coll., 1896.		
Merrimon, L. A., Asheville	1899	1904
Woman's Med. Coll. of Cinn., 1900.		
Minor, C. L., Asheville	1895	1895
Univ. of Va., 1888.		
Morris, E. C., Asheville	1912	1913
Univ. of Ga., 1899.		
Morris, E. R., Asheville	1896	1899
Louisville Med., 1896.		
Orr, C. C., Asheville	1907	1907
Univ. of Md., 1904.		

Name and Address	*Licensed*	*Joined State Society*
Orr, P. B., Asheville Jefferson, 1901.	1901	1904
Paquin, Paul, Asheville Univ. of Mo., 1887.	1899	1899
Pritchard, A. T., Asheville Jefferson, 1905.	1905	1906
Purefoy, G. W., Asheville Jefferson, 1876.	1884	1904
Reeves, A. F., Asheville George Washington, 1906.	1909	1910
Reynolds, C. V., Asheville Univ. of N. Y., 1895.	1895	1896
Rich, J. C., Chandler Univ. of Nashville, 1908.	1908	1908
Reid, R. E., Asheville Univ. of Md., 1895.	1895	1898
Ruck, K. Von, Asheville Univ. of Tubingen, 1878.	1889	1889
Ruck, S. H. Von, Asheville Bellevue, 1899.	1899	1902
Sevier, D. E., Asheville Jefferson, 1895.	1895	1899
Sevier, J. T., Asheville Jefferson, 1895.	1895	1899
Smith, B. R., Asheville Jefferson, 1911.	1913	1913
Smith, O., Asheville Jefferson, 1904.	1905	1905
Stevens, M. L., Asheville Balto. Med., 1891.	1892	1893
Terrell, A. J., Black Mountain Univ. of N. C., 1908.	1908	1909
Terry, P. R., Asheville George Washington, 1906.	1912	1913
Weaver, H. B. (Hon.), Asheville Washington Univ., Md., 1872.	1881	1881
Whittington, W. P. (Hon.), Asheville P. and S., Balto., 1882.	1882	1882
Williams, J. H. (Hon.), Asheville Med. Dept. Iowa S. Univ., 1863.	1881	1881

BURKE COUNTY SOCIETY.

President, J. B. Riddle, Morganton Vanderbilt Univ., 1898.	1904	1904
Secretary, J. W. Vernon, Morganton Jefferson, 1909.	1909	1913
Anderson, P. V., Richmond, Va. Univ. of Va., 1904.	1904	1906
Gayle, E. M. Morganton Univ. of Va., 1902.	1902	1912
Griffin, W. R., Morganton Jefferson, 1910.	1910	1913
Hall, J. K., Richmond, Va. Jefferson, 1904.	1906	1906
Hennessee, E. A., Glen Alpine U. S. Grant Univ., 1900.	1902	1904
Houck, A., Morganton P. and S., Balto., 1884.	1891	1893
Long, L., Glen Alpine N. C. Med. Coll., 1913.	1913	1914

Name and Address	*Licensed*	*Joined State Society*
McCampbell, John, Morganton Balto. Med. Coll., 1894.	1895	1899
Phifer, E. W., Morganton N. C. Med. Coll., 1901.	1902	1904
Ross, C. E., Morganton Univ. of Md., 1889.	1889	1909
Taylor, I. M. (Hon.), Morganton P. and S., N. Y., 1882.	1883	1883
Warlick, E. S., Morganton Vanderbilt, 1881.	1881	1903
Watkins, F. B., Morganton Jefferson, 1907.	1907	1910

CABARRUS COUNTY SOCIETY.

President, P. R. McFayden, Concord Med. Coll. of Va., 1901.	1901	1904
Secretary, R. M. King, Concord Jefferson, 1903.	1903	1905
Block, J. C., Harrisburg Univ. of Md., 1886.	1886	1891
Buchanan, S. E. Concord Univ. of Md., 1912.	1912	1914
Burleyson, L. N., Concord Univ. of Md., 1891.	1891	1894
Caldwell, D. G., Concord Univ. of Md., 1885.	1885	1885
Cauble, H. H., Kannapolis N. C. Med. Coll., 1907.	1907	1910
Foil, M. A., Mount Pleasant Jefferson, 1891.	1891	1908
Flow, J. W., Kannapolis N. C. Med. Coll., 1898.	1903	1903
Gouger, G. J., Concord, r.f.d. Univ. of Md., 1891.	1891	1899
Grier, S. A., Harrisburg Jefferson, 1879.	1885	1904
Lafferty, J. S., Concord Univ. of Md., 1881.	1885	1890
Matthews, J. M., Mount Pleasant Univ. of Tenn., 1899.	1899	1899
Patterson, J. A., Concord Univ. Coll. of Med., Va., 1911.	1911	1912
Pemberton, W. D., Concord Univ. of Md., 1887.	1887	1887
Pharr, T. F. (Hon.), Concord Bellevue, 1877.	1881	1881
Rankin, S. W., Concord Jefferson, 1912.	1912	1914
Reed, J. F., Concord Univ. of N. Y., 1893.	1909	1912
Smoot, J. E., Concord Balto. Med. Coll., 1893.	1894	1902
Wadsworth, W. H., Concord Jefferson, 1911.	1913	1913
Wallace, J. W., Concord N. C. Med., 1907.	1907	1908
Yow, I. A., Georgeville N. C. Med., 1906.	1907	1910

CALDWELL COUNTY SOCIETY.

Name and Address	*Licensed*	*Joined State Society*
President, A. A. Kent, Lenoir	1885	1894
Jefferson, 1885.		
Secretary, C. B. McNairy, Lenoir	1893	1907
P. and S., Balto., 1893.		
Bingham, G. P., Lenoir	1913	1914
Hosp. Med. Coll., Atlanta, Ga., 1907.		
Carter, G. H., Kings Creek	....	1904
Univ. of N. Y., 1877.		
Coffey, L. H., Valmead	1906	1906
Med. Coll. of Va., 1906.		
Corpening, O. J., Granite Falls	1906	1906
Univ. of Med., Va.		
Flowers, B. G., Granite Falls	1884	1904
Goodman, A. B., Lenoir	1897	1904
N. C. Med. Coll., 1898.		
Jones, A. D., Granite Falls	1885	....
Louisville Med. Coll., 1876.		
Moore, J. Claude, Mortimer	1907	1908
Univ. Coll. of Med., Va., 1907.		
Pitts, I. W., Lenoir	1901	1911
Med. Univ. South, 1902.		
Stories, J. G., Proctor	1898	1908
Tenn. Med. College, 1898.		

CARTERET COUNTY SOCIETY.

President, C. L. Duncan, Beaufort	1902	1904
Univ. of Md., 1902.		
Secretary, W. E. Headen, Morehead City	1890	1891
Univ. of Md., 1891.		
Ball, M. W., Newport	1911	1913
Bonner, K. P. B., Morehead City	1905	1905
Med. Coll. of Va., 1905.		
George, D. S., Marshallburg	1903	1903
N. C. Med. Coll., 1903.		
Maxwell, C. S., Beaufort	1899	1903
Univ. of the South, 1901.		
Royal, B. F., Morehead City	1909	1909
Jefferson, 1909.		

CASWELL COUNTY SOCIETY.

President	....	....
Secretary	....	....
Malloy, S. A., Yanceyville	1898	1903
Ky. Sch. Med., 1897.		

CHATHAM COUNTY SOCIETY.

President, B. H. Hackney, Bynum	1911	1912
Tulane Univ., 1911.		
Secretary, H. T. Chapin, Pittsboro	1886	1886
Louisville Med. Coll., 1886.		
Burns, W. M., Goldston	1885	....
P. and S., Balto., 1878.		
Denson, H. A., Bennett	1913	1887
Col. P. and S., Indianapolis, Ind., 1887.		
Edwards, J. D., Siler City	....	1894
Louisville Med. Coll., 1887.		

Name and Address	*Licensed*	*Joined State Society*
Farthing, L. E., Pittsboro Univ. of N. C., 1906.	1906	....
Fields, R. M., Goldston	1909	....
Kirkman, T. A., Siler City	....	....
Laster, P. D., Moncure, r.f.d. No. 1 Louisville Med. Coll., 1875.	1885	1890
McManas, W. L., Bonlee Atlanta Sch. of Med., 1906.	1912	....
Palmer, R. W., Gulf Louisville Med. Coll., 1890.	1891	1891
Strickland, W. J., Moncure Univ. of Md., 1890.	1890	....
Stroud, O. B., Ore Hill P. and S., Balto., 1877.	1888	1892
Upchurch, C. G., Apex, r.f.d. Univ. of Md., 1906.	1907	....
Wrenn, F., Siler City Jefferson, 1912.	1912	....

CHEROKEE COUNTY SOCIETY.

President, N. B. Adams, Murphy Tenn. Med. Coll., 1896.	1909	1909
Secretary, S. C. Heighway, Murphy Med. Coll. Ohio, 1885.	1898	1898
Hill, J. N., Murphy Univ. of Louisville, 1909.	1909	1909
McKaig, Frisby T., Andrews Ala. Med., 1890.	1906	1906
Meroney, B. B., Murphy Gate City Med. Coll., Texas, 1906.	1908	1908
Morrow, W. C., Andrews Atlanta School of Med., 1907.	1909	1909
Webb, B. G., Andrews Louisville Med. Coll., 1885.	1885	1885

CHOWAN-PERQUIMANS COUNTY SOCIETY.

President, J. H. McMullan, Edenton Univ. of Md., 1876.	1876	1876
Secretary, H. M. S. Cason, Edenton Univ. of Md., 1899.	1899	1899
Blanchard, T. W., Hobbsville Med. Coll. of Va., 1911.	1911	....
Cox, T. A., Hertford Univ. of Md., 1892.	1907	1907
Hathaway, B. W., Winfall Louisville Med. Coll., 1885.	1885	1910
Newby, George Edgar, Hertford Jefferson, 1900.	1901	....
Smith, R. W., Hertford Univ. of Md., 1887.	1892	1911
Ward, F. A., Ryland Med. Coll. of Va., 1899.	1899	1913
Warren, J. W., Edenton Univ. Coll. of Med., Va., 1907.	1907	1910

CLEVELAND COUNTY SOCIETY.

Name and Address	*Licensed*	*Joined State Society*
President, T. G. Hamrick, Shelby P. and S., Balto., 1895.	1895	1904
Secretary, W. F. Mitchell, Shelby Univ. of Md., 1890.	1900	1904
Aydlette, J. P., Earl Univ. of Ky., 1901.	1903	1904
Champion, C. O., Mooresboro Atlanta Med. Coll., 1887.	1902	1904
Ellis, R. C., Shelby Balto. Univ. Sch. of Med., 1886.	....	1904
Grigg, W. T., Lawndale Atlanta Med., 1891.	1904	1904
Houser, E. A., Fallston Balto. Univ. Sch. of Med., 1902.	1902	1904
Hunt, J. F., Casar Univ. of Tenn., 1900.	1900	1912
Lattimore, E. B., Shelby Bellevue, 1898.	1896	1904
Lee, L. V., Lattimore Atlanta Med., 1894.	1897	1904
McBrayer, T. E., Shelby, r.f.d. No. 1 Wash. Univ., 1875.	....	1904
McKay, J. L., Kings Mountain N. A. Acad. Homeopathic H. A., 1870.	1885	....
Oates, George, Grover Univ. Louisville, 1894.	1896	1904
Palmer, B. H., Shelby Louisville Med. Coll., 1896.	1898	1904
Royster, S. S., Shelby Tenn. Med., 1890.	1896	1904
Wood, J. W., Shelby, r.f.d. No. 3 Louisville Med. Coll., 1892.	1903	1904

COLUMBUS COUNTY SOCIETY.

President, J. W. Floyd, Tabor Med. Coll. of S. C., 1900.	1907	1912
Secretary, W. F. Smith, Chadbourn N. C. Med. Coll., 1904.	1904	1904
Blake, J. F., Chadbourn N. C. Med. Coll., 1905.	1905	....
Cox, G. S., Tabor	1911	....
Floyd, A. G., Fair Bluff Univ. of Md., 1865.	1887	1904
Floyd, L. D., Cerro Gordo N. C. Med. Coll., 1911.	1911	1911
Humphrey, D. A., Tabor N. C. Med. Coll., 1909.	1909	....
Maxwell, H. B., Whiteville Univ. of Md., 1902.	1902	1902
Moore, T. V., Acme Balto. Med. Coll., 1901.	1901	1901
Northington, James M., Boardman Med. Coll. of Va., 1905.	1909	1910
Saddler, D. B., Vineland	....	....
Smith, S. A., Bolton N. C. Med. Coll., 1911.	1911	1911
Withers, S. M., Chadbourn N. C. Med. Coll., 1902.	1902	1902
Crowell, W. H., Whiteville Univ. of Md.	1895	1896

CRAVEN COUNTY SOCIETY.

Name and Address	*Licensed*	*Joined State Society*
President	....	....
Secretary	1897	....
Bonner, Montague, New Bern Med. Coll. of Va., 1897.	1897	....
Caton, G. A., New Bern Med. Coll. of Va., 1898.	1898	1904
Duffy, Leinster, New Bern P. and S., Balto., 1889.	1888	....
Duffy, Richard N., New Bern Johns Hopkins, 1906.	1907	1907
Gibbs, N. M., New Bern Univ. of Md., 1896.	1895	1895
Hawes, S. J., Dover Univ. Coll. of Med., Va., 1911.	1911	....
Hughes, George, Pollocksville N. Y. Univ. Med. Coll., 1888.	1903	....
Jones, R. D., New Bern Univ. of Md., 1896.	1897	1897
Patterson, J. F., New Bern Jefferson, 1906.	1906	1906
Pollock, Raymond, New Bern Jefferson, 1899.	1900	1900
Primrose, New Bern Bellevue, 1889.	1890	1896
Pritchard, G. L., Vanceboro Univ. of Coll. of Med., 1913.	1913	....
Rhem, J. F., New Bern Bellevue, 1894.	1893	1893
Watson, Walter, New Bern Univ. of Pa., 1910.	1910	1910
Duguid, J. A., Vanceboro N. C. Med. Coll., 1905.	1905	....

CUMBERLAND-HOKE COUNTY SOCIETY.

President, William S. Jordan, Fayetteville Univ. of N. C., 1906.	1906	1906
Secretary, R. L. Pittman, Fayetteville Jefferson, 1910.	1910	1912
Averitt, K. G., Cedar Creek Balto. Med. College.	1893	1902
Brown, G. W., Raeford Ky. School of Med., 1898.	1900	1904
Bullock, T. C., Autryville P. and S., Balto., 1885.	1885	....
Cochran, J. S., Fayetteville Univ. of Md., 1912.	1912	1913
Dickson, A. P., Raeford Univ. of N. Y., 1878.	....	1906
Graham, G. A., Raeford Univ. of N. Y., 1876.	....	1905
Hays, R. B., Fayetteville Univ. of Md., 1906.	1910	1910
Highsmith, J. F., Fayetteville Jefferson, 1889.	1889	1893
Highsmith, Seavy, Fayetteville Univ. Coll. of Med., Va., 1901.	1901	1901
Hutchinson, S. S., Hope Mills N. C. Med. Coll., 1911.	1911	1912

Name and Address	*Licensed*	*Joined State Society*
Juat, Francis, Raeford Univ. Berne, 1886.	1910	1910
Lilly, James M., Fayetteville Univ. Coll. of Med., Va., 1903.	1903	1904
MacKethan, D. G., Fayetteville Univ. Coll. of Med., Va., 1899.	1899	1899
MacKethan, J. A., Fayetteville N. C. Med. Coll., 1901.	1901	1901
McGougan, J. V., Fayetteville Univ. of Md., 1893.	1893	1904
McNeill, J. W. (Hon.), Fayetteville Bellevue, 1876.	1876	1876
Olive, P. W., Wade P. and S., Balto., 1907.	1907	1908
Powell, R. A., Fayetteville Univ. Coll. of Med., Va., 1907.	1907	1908
Smoot, M. L., Fayetteville Univ. Coll. of Med., Va., 1901.	1901	1904
West, T. M., Fayetteville Univ. of Md., 1908.	1910	1910

CURRITUCK COUNTY SOCIETY.

President, W. T. Griggs, Poplar Branch Univ. of Va., 1896.	1896	1901
Secretary,	....	....
Garrenton, C., Bethel Med. Coll. of Va., 1908.	1908	....
Mann, Stuart, Moyock P. and S., Balto., 1895.	1895	....
Maynard, J. D., Knott's Island Univ. of N. C., 1908.	1908	1908
Newbern, J. M., Jarvisburg Georgetown Med. Coll., 1898.	1899	....
Ritter, F. W., Moyock	1885	....

DAVIDSON COUNTY SOCIETY.

President, C. A. Julian, Thomasville Louisville Med. Coll., 1888.	1891	....
Secretary, M. A. Bowers, Thomasville Tulane, 1911.	1911	....
Buchanan, E. J., Lexington Univ. of Md., 1892.	1892	1900
Cathell, J. E., Linwood, r.f.d. No. 1 Univ. of Md., 1899.	1902	....
Clodfelter, C. M., Lexington P. and S., Balto., 1905.	1905	1905
Hill, D. J., Lexington P. and S., Balto., 1893.	1893	1894
Hill, W. L., Lexington, r.f.d. No. 4 P. and S., Balto., 1893.	1893	....
Leonard, G. F., Lexington	1912	....
Long, E. F., Denton Med. Coll. of Va., 1909.	1909	1909
Mock, F. L., Lexington, r.f.d. No. 3 N. C. Med. Coll., 1898.	1908	1908
Peacock, J. W., Thomasville Tulane, 1901.	1901	....

Name and Address	*Licensed*	*Joined State Society*
Phillips, C. H., Fullers Balto. Univ. School of Med., 1892.	1893	....
Terry, J. R., Lexington Univ. of Tenn., 1911.	1912	1912
Vestal, W. J., Lexington P. and S., Balto., 1883.	1885	1893
Yokeley, R. V., Lexington N. C. Med. Coll., 1911.	1911	....
York, A. A., Linwood, r.f.d. No. 2 Chattanooga Med. Coll., 1907.	1907	1907
Zimmerman, R. U., Lexington N. C. Med. Coll., 1901.	1901	1904

DUPLIN COUNTY SOCIETY.

President, J. M. Faison, Faison Univ. of Va., 1885.	1885	1885
Secretary, R. R. Graham, Wallace, Univ. of Va., 1895.	1895	1899
Carr, R. L., Rose Hill Balto. Med. Coll., 1907.	1908	1908
Carroll, J. W., Wallace Univ. of Md., 1903.	1903	1903
Crocker, W. D., Warsaw Louisville Med., 1897.	1896	1896
Landen, J. F., Chinquapin Univ. Coll. of Med., Va., 1905.	1905	1907
Williams, J. M., Warsaw Univ. of Md., 1902.	1902	1902

DURHAM COUNTY SOCIETY.

President, N. P. Boddie, Durham P. and S., Balto., 1883.	1883	1883
Secretary, Foy Roberson, Durham Jefferson, 1909.	1909	1912
Abernethy, E. A., Chapel Hill Med. Coll. of Va.. 1901.	1901	1905
Adams, C. A., Durham P. and S., Balto., 1892.	1892	1892
Bitting, N. D., Durham Jefferson, 1907.	1907	1908
Booker, Lyle S., Durham Univ. Coll. of Med., Va., 1908.	1910	1910
Boone, W. H., Durham N. C. Med. Coll., 1902.	1902	1902
Bowling, E. H., Durham P. and S., Balto., 1891.	1890	1906
Boyles, A. C., Durham Univ. of Med., 1887.	1887	1887
Brooks, B. U., Durham Univ. of Md., 1905.	1905	1905
Cheatham, Archibald, Durham Univ. of Md., 1888.	1888	1888
Coiner, N. L., Durham Univ. of Md., 1884.	1911	1912
Fassett, B. W., Durham Balto. Med. Coll., 1898.	1899	1903
Felts, R. L., Durham Univ. of Md., 1898.	1901	1901

Name and Address	*Licensed*	*Joined State Society*
Graham, Joseph, Durham Univ. of Pa., 1901.	1901	1901
Hicks, C. S., Durham Univ. of Md., 1904.	1904	1904
Hicks, W. N., Durham Med. Coll. of Va., 1864.	1885	1885
Hill, C. D., Durham Univ. of Va., 1888.	1912	1912
Holloway, R. L., West Durham Med. Coll. of Va., 1893.	1893	1893
Johnson, N. M. (Hon.), Durham P. and S., Balto., 1877.	1879	1879
Jordan, A. C., Durham P. and S., Balto., 1881.	1885	1904
Kerns, T. C., Durham Univ. of Pa., 1911.	1911	1912
King, M. N., Durham Univ. of Md., 1898.	1910	1910
Lloyd, B. B., Venable Univ. of N. C., 1909.	1909	1914
Lyon, E. H., Bahama Univ.. of Md., 1904.	1904	1911
MacNider, W. DeB., Chapel Hill Univ. of N. C., 1902.	1902	1902
Manning, I. H., Chapel Hill Long Island Coll. Hosp., Brooklyn, 1897.	1899	1899
Manning, J. M., Durham Bellevue, 1897.	1897	1897
McPherson, S. D., Durham Univ. of Md., 1903.	1903	1903
Nichols, R. E., Gorman Va. Med., Richmond, 1890.	1890	1904
Olive, W. W., Durham Univ. of Md., 1906.	1907	1908
Roberson, M., East Durham Va. Med. Coll., 1912.	1912	1912
Ross, G. H., East Durham Univ. of Tenn., 1899.	1899	1899
Strowd, W. A., Bougemont Univ. of N. C., 1909.	1909	1909
Teague, R. J., Durham Univ. of Md., 1890.	1890	1890
Webb, L. H., Chapel Hill Jefferson, 1910.	1910	1910
Williams, T. R., Venable	....	....
Woodard, Charles A., Durham Univ. of Va., 1904.	1904	1907

EDGECOMBE COUNTY SOCIETY.

President, J. J. Phillips, Tarboro P. & S., N. Y., 1894.	1905	1905
Secretary, S. N. Harrell, Tarboro Univ. of Md., 1897.	1897	1897
Baker, J. M. (Hon.), Tarboro Univ. of Md., 1879.	1879	1879
Bass, S. P., Tarboro Univ. of Va., 1906.	1907	1908

Name and Address	*Licensed*	*Joined State Society*
Green, Wm. W., Tarboro Univ. of N. C., 1908.	1908	1908
Mitchell, Geo. W., Macclesfield Univ. Coll. of Med., Va., 1908.	1913	1913
Raby, J. C., Leggett Univ. Coll. of Med., Va., 1911.	1911	1911
Royster, T. H., Tarboro Univ. Coll. of Med., Va., 1908.	1908	1908
Simpson, J. H., Conetoe Med. Coll. of Va., 1909.	1909	1909
Speight, R. H., Sr. (Hon.), Whitakers, R. F. D. No. 1 Univ. of Md., 1810.	1875	1875
Staton, L. L., Tarboro Univ. of N. Y., 1870.	1870	1900
Thigpen, Wm. J., Tarboro Jefferson, 1900.	1900	1900
Wooten, A. M., Pinetops Univ. of N. C., 1910.	1910	1910

FORSYTH COUNTY SOCIETY.

President, E. A. Lockett, Winston-Salem Univ. of Pa., 1902.	1903	1903
Secretary, R. L. Wall, Winston-Salem Jefferson, 1912.	1912	1913
Bahnson, H. T. (Hon.), Winston-Salem Univ. of Pa., 1867.	1869	1869
Bynum, John, Winston-Salem Univ. of N. Y., 1892.	1892	1900
Bynum, W. H., Germanton Univ. Coll. of Med., Va., 1900.	1900	1900
Carlton, R. L., Kernersville Univ. of Md., 1906.	1906	1906
Chaney, T. M., Winston-Salem Univ. of Md., 1906.	1908	1908
Craig, S. D., Winston-Salem Tulane, 1908.	1908	1911
Dalton, D. N., Winston-Salem Univ. of N. Y., 1881.	1885	1886
Davis, T. W., Winston-Salem Med. Coll. of S. C., 1898.	1900	1901
Dowdy, G. E., Winston-Salem Univ. of Md., 1909.	1909	1909
Edwards, A. D., Winston-Salem Univ. of Md., 1903.	1904	1904
Fearington, J. P., Winston-Salem Univ. of Md., 1887.	1887	1904
Flint, S. S., Rural Hall P. and S., Balto., 1889.	1890	1906
Gray, E. P., Winston-Salem Johns Hopkins Univ., 1906.	1907	1907
Hammock, J. C., Walkertown P. &. S., Balto., 1895.	1895	1905
Jewett, R. D., Winston-Salem Univ. of Va., 1888.	1890	1890
Johnson, W. M., Winston-Salem Jefferson, 1908.	1908	1910
Kapp, H. H., Winston-Salem Jefferson, 1901.	1901	1904

Name and Address	*Licensed*	*Joined State Society*
Lawrence, C. S., Winston-Salem George Washington Univ., 1908.	1908	1908
Linville, A. Y., Winston-Salem Univ. of N. Y., 1889.	1889	1889
Long, V. McK., Winston-Salem N. C. Med. Coll., 1906.	1906	1906
Lott, H. S., Winston-Salem Univ. of Ga., 1884.	1887	1887
Paddison, J. R., Kernersville Univ. of Md., 1902.	1902	....
Pepper, J. K., Winston-Salem P. & S., Balto., 1907.	1908	1908
Pfohl, S. F., Winston-Salem Univ. of Pa., 1894.	1898	1898
Schallert, Paul O., Winston-Salem Med. Dept., Univ. of Ill., 1904.	1904	1904
Schaub, O. P., Winston-Salem Balto. Med. Coll., 1898.	1898	1898
Shaffner, T. F., Sr. (Hon.), Winston-Salem	....	....
Spainhour, E. H., Winston-Salem Balto. Med. Coll., 1898.	1898	1898
Spencer, W. O., Winston-Salem Jefferson, 1891.	1891	1894
Strickland, E. F., Bethania Univ. of N. Y., 1887.	1887	1903
Summers, C. L., Winston-Salem Univ. of Md., 1887.	1891	1896
Valk, A. D., Winston-Salem Johns Hopkins, 1910.	1913	1913
Whittington, J. B., Winston-Salem N. C. Med. Coll., 1911	1911	1911
Wiggins, J. C., Winston-Salem Univ. of Pa., 1911.	1911	1911
Williams, J. D., Lewisville Vanderbilt, 1898.	1898	1898

FRANKLIN COUNTY SOCIETY.

President, R. F. Yarborough, Louisburg Columbia Univ., D. C., 1898.	1899	1899
Secretary, H. A. Newell, Louisburg P. & S., Balto., 1906.	1906	1906
Bobbitt, E. H., Louisburg Univ. of Md., 1877.	....	1886
Burt, S. P., Louisburg P. & S., Balto., 1896.	1896	1904
Floyd, R. P., Louisburg, R. F. D. No. 1 S. C. Med. Coll., 1878.	....	1904
Harris, J. H., Franklinton Bellevue, 1886.	1886	1904
Henderson, R. B., Franklinton Univ. of Md., 1887.	1887	1904
Johnson, B. C., Bunn Univ. of N. C., 1910.	1910	1910
Malone, J. E., Louisburg Bellevue, 1875.	1885	1904
Timberlake, R. E., Youngsville Jefferson, 1908.	1908	1910

GASTON COUNTY SOCIETY.

Name and Address	*Licensed*	*Joined State Society*
President, H. F. Glenn, Gastonia P. & S., Atlanta, 1900.	1900	1904
Secretary, Bess V. Puett, Dallas Woman's Med. Coll. of Balto., 1909.	1909	1910
Adams, C. E., Gastonia Univ. of Md., 1878.	1885	1904
Anders, M. G., Gastonia Med. Coll. of Md., 1901.	1902	1902
Anderson, J. A., McAdenville Univ. of Ga., 1899.	1909	1909
Anthony, J. E., Kings Mountain Univ. of Tenn., 1911.	1911	1911
Davis, Wm. W., Belmont Ky. School of Med., 1875.	1885	1908
Eddleman, H. M., Gastonia Ky. School of Med., 1886.	1886	1904
Garren, R. H., Bessemer City Univ. of Nashville, 1900.	1901	1904
Garrison, D. A., Gastonia Louisville Med. Coll., 1896.	1896	1899
Glenn, L. N., Gastonia Univ. of Md., 1897.	1897	1897
Hunter, M. C., Huntersville P. & S., Balto., 1882.	1882	1904
Jenkins, J. H., Gastonia Ky. Sch. of Med., 1887.	1888	1888
McCombs, C. J., Gastonia N. C. Med. Coll., 1905.	1905	1908
McCoy, T. M., Mt. Holly N. C. Med. Coll., 1905.	1906	1907
Orr., N. A., Belmont Univ. Coll. of Med., Va., 1904.	1904	1911
Patrick, L. N., Charlotte Univ. of Md., 1910.	1910	1913
Pugh, C. H., Stanly N. C. Med. Coll., 1910.	1910	1910
Quickel, T. C., Gastonia Tulane Univ., 1900.	1899	1904
Reid, J. W., Lowell Jefferson, 1909.	1909	1909
Reid, R. M., Gastonia Univ. of N. Y., 1890.	1890	1903
Rhyne, R. E., Mt. Holly N. C. Med. Coll., 1907.	1907	1908
Robinson, F., Lowell Louiseville Med. Coll., 1878.	1878	1904
Rowe, R. H., Bessemer City Univ. Louisville, 1912.	1912	1913
Sloan, J. M., Gastonia Louisville Med. Coll., 1891.	1891	1904
Wilkes, S. A., Dallas Univ. of Ky., 1902.	1903	1903
Wilson, F. G., Gastonia Univ. of Md., 1896.	1896	1899

GRANVILLE COUNTY SOCIETY.

Name and Address	*Licensed*	*Joined State Society*
President, S. D. Booth, Oxford Med. Coll. of Va., 1867.	1885	....
Secretary, G. T. Sikes, Grissom Univ. of Md., 1883.	1884	1884
Booth, T. L., Oxford Med. Coll. of S. C., 1883.	1885	....
Bullock, W. B., Hester Bellevue, 1892.	1892	....
Daniel, N. C., Oxford N. C. Med. Coll., 1895.	1895	....
Hardee, P. R., Stem P. & S., Balto., 1885.	1885	1885
Hays, B. K., Oxford Univ. Coll. of Med., Va., 1894.	1894	1896
Holloway, O. W., North Side Med. Coll. of Va., 1901.	1901	1903
Meadows, E. B., Oxford Univ. Coll. of Med., Va., 1901.	1901	1901
Morris, J. A., Oxford Vanderbuilt, 1890.	1893	1893
Sanderford, J. F., Creedmore P. &. S., Balto., 1890.	1890	1891
Taylor, W. L., Stovall Univ. of Va., 1900.	1900	1900
Thomas, W. N., Oxford Med. Coll. of Va., Richmond, 1911.	1911	....
Watkins, G. S., Oxford Univ. Coll. of Med., Va., 1900.	1901	....

GREENE COUNTY SOCIETY.

President, W. W. Whittington, Snow Hill Louisville Med. Coll., 1895.	1895	1898
Secretary,	....	....
Edwards, G. C., Hookerton Bellevue, N. Y., 1883.	1883	1883
Harper, J. H., Snow Hill Jefferson, 1906.	1906	1906
Murphy, W. B., Snow Hill Univ. Coll. of Med., Richmond, 1903.	1903	1903
West, A., Walstonburg	....	....

GUILFORD COUNTY SOCIETY.

President, J. A. Williams, Greensboro Univ. of Va., 1898.	1898	1898
Secretary, P. Jarboe, Greensboro Georgetown Univ., 1905.	1906	1906
Alford, A. E. B., Greensboro Columbia Univ. of N. Y., 1909.	1909	1909
Ashworth, W. C., Greensboro P. & S., Balto., 1892.	1892	1892
Austin, J. W., High Point Jefferson, 1910.	1910	1913
Banner, C. W., Greensboro Univ. of Md., 1899.	1899	1901
Battle, J. T. J., Greensboro P. & S., Balto., 1884.	1884	1889

Name and Address	*Licensed*	*Joined State Society*
Beall, L. G., Greensboro N. C. Med. Coll., 1906.	1906	1906
Beall, W. P. (Hon.), Greensboro Jefferson, 1879.	1879	1879
Boyles, J. H., Greensboro P. &. S., Balto., 1903.	1903	1903
Braddy, W. H., Greensboro Univ. of N. C., 1909.	1909	1913
Burrus, J. T., High Point Balto. Med. Coll., 1901.	1898	1898
Coe, S. C., High Point N. C. Med. Coll., 1910.	1912	1913
Cole, W. F., Greensboro Johns Hopkins, 1909.	1909	1909
Dees, R. E., Greensboro Univ. of Md., 1906.	1908	1908
Dees, R. O., Greensboro Univ. of Md., 1906.	1906	1907
Dick, J. V., Gibsonville, J. V Univ. of N. C., 1907.	1907	1908
Dodson, H. H., Greensboro Med. Coll. of Va., 1882.	1885	1886
Duncan, G. F., High Point Balto. Univ., 1898.	1898	1907
Fields, B. T., Greensboro Univ. Coll. of Med., Va., 1912.	1912	1914
Fortune, A. F., Greensboro Univ. Coll. of Med., Va., 1900.	1900	1904
Fox, M. F. (Hon.), Guilford College P. & S., Balto., 1881.	1885	1885
Gilmer, C. S., Greensboro, R. F. D. No. 6 Univ. of N. Y., 1891.	1891	1894
Gove, A. M., Greensboro W. M. C., N. Y., 1892.	N. Y., 1892 N. C., 1894	 1894
Grayson, C. S., High Point Geo. Washington, 1906.	1907	1908
Harrison, E., Greensboro Univ. of Md., 1896.	1900	1900
Hiatt, H. B., High Point Univ. of Md., 1907.	1907	1914
Hilton, J. J., Greensboro Univ. of Md., 1886.	1889	1904
Holt, W. T., McLeansville Univ. of Tenn., 1890.	1890	1890
Hyatt, F. C., Greensboro Jefferson, 1907.	1907	1907
Jackson, W. L., Trinity N. C. Med. Coll., 1912.	1912	1913
Jones, W. M., Greensboro Univ. of Md., 1903.	1903	1903
Jordan, G. E., Greensboro P. & S., Balto., 1891.	1891	1904
Knight, W. P., Greensboro Balto. Med. Coll., 1898.	1898	1898
Ledbetter, A. E., Greensboro Univ. of Md., 1888.	1888	1914
Long, J. W. (Hon.), Greensboro Vanderbilt, 1884.	1884	....
McAnally, W. J., High Point Balto. Med. Coll., 1897.	1896	....

Name and Address	*Licensed*	*Joined State Society*
McCain, H. W., High Point Univ. of Md., 1909.	1909	1911
Meadows, W. J., Greensboro Med. Coll. of Ala., 1894.	1899	1904
Mebane, W. N., Greensboro Geo. Wash. Univ., 1906.	1908	1914
Michaux, E. R., Greensboro Univ. of N. Y., 1889.	1889	1904
Miles, M. S., Greensboro Woman's Med. Coll., Cinn., 1898.	1904	1905
Miles, P. W., Greensboro Univ. Coll. of Med., Va., 1908.	1909	1914
Moore, C. E., Greensboro Jefferson, 1907.	1909	....
Moseley, C. W., Greensboro Balto. Med. Coll., 1893.	1893	1896
Norman, G. W., Greensboro Balto. Med. Coll., 1896.	1896	1896
Ogburn, H. H., Greensboro Johns Hopkins, 1913.	1914	1914
Reaves, C. E., Greensboro Univ. of the South, 1906.	1914	1914
Reaves, W. P., Greensboro Univ. of the South, 1903.	1905	....
Reitzel, C. E., High Point P. & S., Atlanta, 1902.	1902	1902
Reives, J. T., Greensboro Louisville Med. Coll., 1891.	1891	1892
Richardson, W. J., Greensboro Jefferson, 1869.	1889	1904
Roberson, C., Greensboro L. I. Coll. Hosp., 1897.	1897	....
Schoonover, R. A., Greensboro Univ. of Md., 1905.	1906	1912
Smith, A. T., Greensboro Med. Coll. of Va., 1908.	1910	1913
Spoon, O. A., Greensboro N. C., Med. Coll., 1908.	1908	....
Stanton, D. A., High Point Vanderbilt, 1887.	1887	1894
Tankersley, J. W., Greensboro Jefferson, 1906.	1906	1906
Turner, J. A., High Point Louisville Med. Coll. 1886.	1889	1891
Turner, J. P., Greensboro Univ. of Md., 1896.	1897	1904
Whitaker, A. C., Julian Univ. of Tenn., 1903.	1903	....
Williams, B. B., Greensboro Univ. of Md., 1883.	1886	....
Wilson, A. R., (Hon.), Greensboro Jefferson, 1882.	1882	....

HALIFAX COUNTY SOCIETY.

President	....	....
Secretary, A. S. Harrison, Enfield Univ. of Md., 1888.	1888	1898
Adkins, E. H., Rosemary Univ. of Md., 1905.	1907	....

Name and Address	*Licensed*	*Joined State Society*
Ferguson, H. B., Halifax Jefferson, 1882.	1882	....
Irwin, H. C., Roanoke Rapids Univ. of Md., 1905.	1907	....
Leggett, K., Hobgood Ky. Sch. of Med., 1884.	1885	1885
Long, T. W. M., Roanoke Rapids Univ. Coll. of Med., Richmond, 1908.	1909	....
Nicholson, B. M., Ringwood Univ. Coll. of Med., Richmond, 1910.	1910	1913
Pierce, S. B., Weldon Ky. Sch. of Med., 1893	1891	1904
Smith, O. S., Scotland Neck Univ. of Med., Va., 1899.	1899	1899
Register, F. M., Tillery Ky. Sch. of Med., 1893.	1891	1904

HARNETT COUNTY SOCIETY.

President, W. L. Hudson, Dunn Ky. Sch. of Med., 1876.	1883	1894
Secretary, L. J. Arnold, Lillington N. C. Med. Coll., 1905.	1905	1905
Barefoot, M. L., Dunn Univ. of Md., 1911.	1911	1912
Halford, J. W., Lillington Columbian Univ., 1904.	1905	1905
Hicks, I. F., Dunn N. C. Med. Coll., 1902.	1902	1904
Highsmith, C., Dunn Balto. Med. Coll., 1898.	1898	1898
Holt, W. P., Duke Jefferson, 1895.	1895	1901
McKay, J. F., Buie's Creek S. C. Med. Coll., 1884.	1885	1904
McLean, J. W., Godwin N. C. Med. Coll., 1902.	1902	1902
Melvin, W. C., Linden Univ. Coll. of Med., Va., 1900.	1900	1905
Moore, F. T., Benson P. & S., Balto., 1885.	1885	1904
Roberts, H. C., Coats Tulane Univ., 1912.	1912	1913
Sexton, C. H., Dunn Univ. of Md., 1890.	1890	1904
Smith, F., Linden S. C. Med. Coll., 1868.	....	1905
Warren, R. L., Dunn Tulane Univ., 1911.	1911	1912
Wilkins, R. B., Duke N. C. Med. Coll., 1913.	1913	1913

HAYWOOD COUNTY SOCIETY.

President, J. E. Wilson, Canton, R. F. D. Louisville Med. Coll., 1876.	1885	1903
Secretary, J. R. McCracken, Waynesville N. C. Med. Coll., 1902.	1902	1903
Abel, J. F., Waynesville Univ. of Balto., 1892.	1893	1899

Name and Address	*Licensed*	*Joined State Society*
Allen, R. L., Waynesville	1885	1899
Univ. of Md., 1885.		
Greenwood, B. H., Waynesville	1894	1906
Balto. Med. Coll., 1893.		
Johnson, W. C., Canton	1912	1914
Tulane Univ., 1912.		
McFadyen, H. L., Waynesville	1885	1904
Univ. of N. Y., 1876.		
McMahan, J. W., Crestmont	1912	1913
Tenn. Med. Coll., 1900.		
Mease, J. H., Canton	1893	1894
Vanderbilt, 1893.		
Reynolds, T. F., Canton	1904	1904
N. C. Med. Coll., 1904.		
Russell, J. M., Canton	1911	1911
Univ. of Nashville, 1911.		
Stringfield, S. L., Waynesville	1905	1906
Jefferson, 1905.		
Stringfield, Thos., Waynesville	1898	1899
Vanderbilt, 1898.		
Way, J. H., Waynesville	1885	1887
Vanderbilt, 1886.		
Willis, A. P., Canton	1905	1906
Univ. of N. C., 1905.		

HENDERSON-POLK COUNTY SOCIETY.

President, W. R. Kirk, Hendersonville	1901	1903
Centr. Univ. of Ky., 1890.		
Secretary, G. E. Dixon, Hendersonville	1903	1903
P. & S., St. Louis, 1903.		
Brown, J. S., Hendersonville	1894	1894
Northwestern Univ., 1893.		
Cranford, J. F., Hendersonville	1909	1910
N. C. Med. Coll., 1909.		
Drafts, A. B., Hendersonville	1899	1903
Univ. of Va., 1896.		
Edgerton, J. L., Hendersonville	....	1890
Univ. of Md., 1877.		
Greenwood, S. E., Fletcher, R. F. D	1903	1904
Tenn. Med., 1902.		
Hooper, J. O., Saluda	1908	1909
Univ. of Nash., 1908.		
Howe, W. B. W., Hendersonville	1907	1908
Med. Coll. of S. C., 1906.		
Mallet, E. P., Hendersonville	....	....
Morse, L. B., Hendersonville	1901	1908
Chicago Homeopa. Coll., 1897.		
Palmer, M. C. Tryon	1911	1913
Med. Coll. State of S. C., 1910.		
Salley, E. M., Saluda	1905	1906
Univ. of Md., 1905.		
Sumner, T. W., Fletcher	1910	1910
Jefferson, 1910.		

HERTFORD COUNTY SOCIETY.

President, T. I. Burbage, Como	1885	1905
Memphis Hosp. Coll. Med., 1883.		
Secretary, C. F. Griffin, Winton	1893	....
P. & S., Balto., 1881.		

Name and Address	*Licensed*	*Joined State Society*
Gary, R. H., Murfreesboro P. & S., Balto., 1881.	1885	....
Greene, A. W., Ahoskie Univ. Coll. Med., Va., 1904.	1904	1905
Harrell, G. N., Murfreesboro U. C. M. Richmond, 1907.	1907	1907
Kellum, W. D., Ahoskie, R. F. D. No. 3 P. & S., Balto., 1879.	1885	....
Mitchell, J. H., Ahoskie P. & S., Balto., 1879.	1885	1904
Mitchell, P. H., Ahoskie Univ. Coll. Med., Va., 1907.	1907	1908
Pollard, W. B., Winton Univ. of Pa., 1899.	1903	1905
Powell, J. L., Harrellsville P. & S., Balto., 1907.	1908	....

HYDE COUNTY SOCIETY.

President	....	....
Secretary, F. M. Clarke, Middletown P. and S., Balto., 1893.	1894	....
Harris, A. G., Fairfield Univ. of the South, 1905.	1907	1907
Jones, E. H., Swan Quarter Washington Univ., Md., 1872.	....	....
Mann, J. A., Fairfield Univ. of N. Y., 1872.	....	....
Mann, J. E., Lake Landing Univ. of Md., 1908.	1908	1908
Swindell, W., Scranton Balto. Med. Coll., 1908.	1909	1909
Windley, R. E., Swan Quarter Univ. of Md., 1903.	1904	1907

IREDELL-ALEXANDER COUNTY SOCIETY.

President, F. A. Carpenter, Mooresville N. C. Med. Coll., 1906.	1906	1906
Secretary, J. E. McLaughlin, Statesville Univ. of Md., 1886.	1886	1896
Adams, M. R., Statesville Univ. of Md., 1878.	1884	1884
Anderson, T. E., (Hon.), Statesville Jefferson, 1878.	1878	1878
Bell, A. E., Mooresville Univ. of Md., 1897.	1897	....
Cloninger, L. V., Statesville N. C. Med. Coll., 1900.	1900	....
Easley, P. S., Statesville Jefferson, 1908.	1907	1910
Gilmore, W. D., Mooresville Univ. of N. C. Med. Coll., 1903.	1904	1910
Hall., E. A., Statesville Univ. of Md., 1904.	....	1904
Jurney, P. C., Turnersburg Med. Coll. of Va., 1901.	1901	1903
Leeper, D. H., Hiddenite N. C. Med. Coll., 1906.	1906	1913

Name and Address	*Licensed*	*Joined State Society*
Long, H. F., Statesville	1892	1903
Univ. of Md., 1892.		
Sharpe, F. L., Statesville	1904	1905
Univ. N. C. Coll. of Med., 1904.		
Thurston, A., Taylorsville	1909	1909
Univ. of Md., 1909.		

JACKSON COUNTY SOCIETY.

President, A. A. Nichols, Sylva	1904	1904
Univ. of Nashville, 1898.		
Secretary, A. S. Nichols, Sylva	1907	1907
Tenn. Med., 1905.		
Williams, L. L., Cullowhee	1913	1913
Univ. of Md., 1913.		

JOHNSTON COUNTY SOCIETY.

President, T. Hooks, Smithfield	1901	1903
Med. Coll. of Va., 1901.		
Secretary, L. D. Wharton, Smithfield	1893	1894
Tulane Univ., 1893.		
Coleman, G. S., Kenly	1907	1908
Med. Coll. of Va., 1907.		
Eason, Oscar, Princeton	1910	1910
Univ. of N. C., 1910.		
Grady, J. C., Kenly	1887	1905
P. & S., Balto., 1887.		
Griffin, J. A., Clayton	....	1905
P. & S., Balto., 1881.		
Griffin, T. A., Clayton	1912	1912
Univ. of Md., 1912.		
Hinnant, M., Micro	1912	1912
Univ. of Md., 1912.		
Hocutt, B. A., Clayton	1906	1907
Univ. of N. C., 1906.		
McLemore, G. A., Clayton	1906	1907
Univ. of N. C., 1900.		
Munns, L. A., Smithfield	1888	1904
P. & S., Balto., 1888.		
Myerburg, I. W., Pine Level	1907	1908
Jefferson, 1907.		
Noble, R. J., (Hon.), Selma	1879	1878
Ky. Med. Sch., 1875.		
Parker, G. E., Benson	....	1904
P. & S., Balto., 1885.		
Person, J. B., Selma	1897	1900
Med. Coll. of Va., 1897.		
Rose, A. H., Smithfield	1906	1906
Jefferson, 1906.		
Utley, H. H., Benson	1906	1906
Balto. Med. Coll., 1906.		
Vick, G. D., Selma	1906	1906
Jefferson, 1906.		
Young, J. J., Clayton	1896	1904
P. and S., Balto.		

LEE COUNTY SOCIETY.

President, E. P. Snipes, Jonesboro	1892	1892
Vanderbilt, 1890.		
Secretary, L. McIver, Sanford	1902	1902
Univ. of Ky., 1901.		

Name and Address	*Licensed*	*Joined State Society*
Hoyle, H. B., Montrose	1896	1903
N. C. Med. Coll., 1896.		
McIver, E. M., Jonesboro	1908	1908
Univ. of N. C., 1908.		
Munroe, W. A., Sanford	1886	1888
Univ. of Md., 1886.		
Munroe, J. P., Sanford	1901	1901
P. & S., Balto., 1901.		
Rosser, R. G., Broadway	1909	1911
N. C. Med. Coll., 1909.		
Watson, L., Broadway	1900	1904
N. C. Med. Coll., 1900.		

LENOIR COUNTY SOCIETY.

President, F. A. Whitaker, Kinston	1871	1884
Univ. of Penn., 1875.		
Secretary, A. D. Parrott, Kinston	1906	1906
Univ. Coll. Med., Va., 1906.		
Denny, W. C. (Hon.), Pink Hill	....	....
Hargrove, W. C., Kinston	1901	1901
Univ. of Md., 1901.		
Monk, H. D., Trenton	1896	....
Med. Coll. of Va.., 1896.		
Mosely, Z. V., Kinston	1913	....
Univ. Coll. of Med., Va., 1913.		
Parrott, J. M., Kinston	1895	1895
Tulane, 1895.		
Parrott, W. T., Kinston	1895	1895
Tulane, 1895.		
Pridgen, C. L., Kinston	1901	....
Jefferson, 1901.		
Tull, Henry (Hon.), Kinston	1876	1876
Univ. of Pa., 1876.		
Whitaker, F. S., Kinston	1913	1913
Balto. Med. Coll., 1913.		
Whitaker, R. A., Kinston	1885	1885
P. and S., Balto., 1885.		

LINCOLN COUNTY SOCIETY.

President	....	....
Secretary, J. B. Wright, Lincolnton	1899	1899
Univ. Coll. of Med., Va., 1899.		
Abernethy, H. N., Denver	1894	1898
Louisville Med. Coll., 1894.		
Bandy, W. G., Maiden	1912	1914
Vanderbilt, 1908.		
Costner, G. H., Lincolnton	1902	1907
Univ. of Md., 1901.		
Crowell, L. A., Lincolnton	1892	1892
Balto. Med. Coll., 1892.		
Gamble, J. R., High Shoals	1911	....
Univ. of Nashville & Tenn., 1911.		
Hoover, C. H., Crouse	1903	1904
Balto. Med. Coll., 1903.		
Jacocks, W. P., Raleigh	....	....
Killian, R. B., Lincolnton	1885	1904
Louisville Med. Coll., 1885.		
Kizer, W. C., Reepsville	....	1904
So. Med. Coll., Ga., 1889.		

Name and Address	*Licensed*	*Joined State Society*
Sloan, H. L., Lincolnton Univ. of Pa., 1911.	1913	....
Taylor, B. C., Stanley Univ. of Md., 1901.	1902	1907
Thompson, C. D., Lincolnton Univ. of Tenn., 1901.	1901	1904

MACON-CLAY COUNTY SOCIETY.

Prseident, S. H. Lyle, Franklin Univ. of Nashville, 1881.	1881	1881
Secretary, W. A. Rogers, Franklin Univ. of Nashville, 1898.	1898	1898
Lapham, M. E., Highlands Woman's Med. of Pa., 1900.	1906	1906
Siler, F. L., Franklin Univ. of Nashville, 1897.	1898	1898

MADISON COUNTY SOCIETY.

President, S. B. Woody, Spring Creek Vanderbilt, 1892.	1898	1898
Secretary, O. O. Miller, Stackhouse Univ. of Louisville, 1911.	1913	1914
Frisbee, J. J., Spring Creek	....	....
Moore, J. N., Marshall Univ. of N. C., 1905.	1905	1908
Peck, E. J., Hot Springs Vanderbilt, 1879.	....	1907
Roberts, F., Marshall Jefferson, 1892.	1892	1902
Sprinkle, C. N., Marshall Jefferson, 1910.	1910	1911
Tilson, J. C., Marshall Tenn. Med. Coll., 1892.	1885	1904

MARTIN COUNTY SOCIETY.

President, J. B. H. Knight, Williamston P. & S., Balto., 1885.	1885	1891
Secretary, W. E. Warren, Williamston P. & S., N. Y., 1889.	1893	1894
Fleming, M. J., Hamilton Jefferson, 1906.	1906	1906
Hargrove, R. H. (Hon.), Robersonville Univ. of Md., 1877.	1879	1879
Long, B. L., Hamilton Univ. of Md., 1881.	1883	1882
Long, E. M., Oak City Univ. of Md., 1909.	1909	1909
Nelson, R. J., Robersonville Louisville Coll., Ky., 1890.	1890	1893
Rhodes, J. S., Williamston Med. Coll. of Va., 1906.	1906	1906
Saunders, J. H., Williamston Univ. Coll. Med., Va., 1905.	1905	1905
Smithwick, J. E., Jamesville Med. Coll. of Va., 1897.	1897	1897
Ward, J. E., Robersonville Univ. of Md., 1904.	1904	1904

Name and Address	*Licensed*	*Joined State Society*
Ward, V. A., Robersonville Univ. of Md., 1908.	1908	1908
Williams, J. W., Everitts Univ. of Md., 1906.	1906	1906
York, Hugh B., Williamston P. & S., Balto., 1906.	1906	1906

McDOWELL COUNTY SOCIETY.

President, M. F. Morphew, Marion P. & S., Balto., 1883.	1883	1893
Secretary, J. F. Jonas, Marion Balto. Med. Coll., 1903.	1903	1903
Ashworth, B. L., Marion P. &. S., Balto., 1893.	1893	1895
Johnston, J. B., Old Fort, R. F. D. No. 1 Univ. of Louisville, 1905.	1905	1914
Justice, G. B., Marion P. & S., Atlanta, 1906.	1907	1907
Kirby, G. S., Marion U. C. M. Richmond, Va., 1897.	1896	1904
McIntosh, D. M., Old Fort Med. Coll. of Va., 1904.	1907	1908

MECKLENBURG COUNTY SOCIETY.

President, C. E. Walker, Charlotte Univ. of Md., 1891.	1891	1894
Secretary, O. B. Ross, Charlotte Univ. of Pa., 1909.	1909	1911
Abernethy, J. S., Charlotte, R. F. D. No. 6 P. & S., Balto., 1878.	1878	1878
Alexander, A. L., Charlotte Woman's Med. Coll., Pa., 1884.	1885	1885
Alexander, J. R., Charlotte Univ. of Md., 1894.	1894	1898
Allan, William, Charlotte P. & S., Balto., 1906.	1906	1908
Austin, F. D., Charlotte N. C. Med. Coll., 1907.	1907	1907
Austin, J. A., Charlotte Jefferson, 1882.	1882	1887
Barron, A. A., Charlotte Vanderbilt, 1909.	1910	1909
Brenizer, A. G., Charlotte Johns Hopkins and Univ. Heidelburg, 1908.	1910	1909
Caldwell, J. H., Charlotte N. C. Med. Coll., 1914.	1914	1914
Cauthen, R. S. Charlotte Balto. Med. Coll., 1902.	1911	1911
Clifford, J. S., Charlotte Geoge Washington Univ., 1906.	1907	1908
Crowell, A. J., Charlotte Univ. of Md., 1893.	1892	1893
Crowell, S. M., Charlotte Univ. of Md., 1895.	1895	1895
Davidson, J. E. S., Charlotte Univ. of Md., 1894.	1898	1898
DeArmon, J. McC., Charlotte Univ. of Md., 1886.	1886	1886

Name and Address	*Licensed*	*Joined State Society*
Faison, I. W. (Hon.), Charlotte	1878	1878
Bellevue, 1878.		
Faison, Yates, Charlotte	1910	1912
Harvard, 1910.		
Gibbin, R. L., Charlotte	1891	1893
Jefferson, 1892.		
Graham, W. A., Charlotte	1889	1890
P. & S., N. Y., 1888.		
Hand, E. H., Pineville	1907	1912
N. C. Med. Coll., 1907.		
Hawley, F. O., Charlotte	1869	1904
Univ. Edinburgh, Scotland, 1868.		
Henderson, S. M., Charlotte, R. F. D.	1894	1904
Univ. of Md., 1894.		
Hovis, L. W., Charlotte	1904	1904
N. C. Med. Coll., 1904.		
Hunter, L. W., Charlotte	1894	1904
Univ. of Md., 1894.		
Hunter, Myers, Charlotte	1906	1906
Georgetown Univ., 1905.		
Irwin, J. R. (Hon.), Charlotte	1882	1882
Univ. of Md., 1879.		
Jennings, R. G., Charlotte, R. F. D.	1913	1914
N. C. Med. Coll., 1913.		
King, P. M., Charlotte	1902	1904
Bellevue, 1902.		
Lafferty, R. H., Charlotte	1906	1906
N. C. Med. Coll., 1906.		
Leinback, R. F., Charlotte	1907	1909
Univ. of Pa., 1907.		
MacConnell, J. W., Davidson	1908	1908
Univ. of Md., 1907.		
Matheson, J. P., Charlotte	1902	1902
N. C. Med. Coll., 1902; Univ. of Md., 1905.		
Matthews, J. C., Charlotte	1913	1914
N. C. Med. Coll., 1913.		
McKay, H. W., Charlotte	1911	1912
Jefferson, 1910.		
McLaughlin, C. S., Charlotte	1896	1903
Univ. of Md., 1896.		
Misenheimer, C. A. (Hon.), Charlotte	1882	1882
Univ. of N. Y., 1882.		
Moore, A. W., Charlotte	1912	1912
Univ. of Va., 1901; Univ. of N. Y., 1902.		
Moore, Oren, Charlotte	1911	1911
N. C. Med. Coll., 1911.		
Munroe, J. P., Charlotte	1887	1887
Univ. of Va., 1886.		
Myers, John Q., Charlotte	1904	1904
N. C. Med. Coll., 1904.		
Nalle, Brodie C., Charlotte	1905	1905
Univ. of Va., 1903.		
Nash, J. F., Charlotte	1914	1914
N. C. Med. Coll., 1914.		
Newell, Leon B., Charlotte	1905	1905
Univ. of N. C., 1905.		
Nisbet, W. O., Charlotte	1899	1899
Med. Coll. S. C., 1889.		
Patterson, Reid, Charlotte (Chad. Station)	1912	1912
N. C. Med. Coll., 1912.		

Name and Address	*Licensed*	*Joined State Society*
Peeler, C. N., Charlotte N. C. Med. Coll., 1906.	1906	1906
Petrie, R. W., Charlotte Univ. of Md., 1903.	1903	1903
Petteway, G. H., Charlotte, R. F D N. C. Med. Coll., 1913.	1913	1914
Pharr, Wm. W., Charlotte P. & S., Balto., 1882.	1883	1883
Pressley, G. M., Charlotte Jefferson, 1892.	1895	1895
Query, R. A., Charlotte, R. F. D. No. 3 Univ. Coll. of Med., Va., 1907.	1907	1907
Ransom, J. L., Pineville, R. F. D. No. 15 N. C. Med. Coll., 1911.	1911	1911
Register, E. C., Charlotte Univ. of N. Y., 1885.	1887	1887
Reid, W. K., Charlotte Univ. of N. Y., 1891.	1891	1891
Simmons, J. O., Charlotte Grant University, 1894.	1906	1906
Squires, J. W., Charlotte N. C. Med. Coll., 1911.	1911	1911
Strong, C. M., Charlotte Univ. of Md., 1888.	1898	1898
Trippe, C. M., Charlotte N. C. Med. Coll., 1911.	1911	1911
Tucker, J. H., Charlotte Univ. of Va., 1899.	1899	1899
Wakefield, H. A., Charlotte N. C. Med. Coll., 1908.	1908	1911
Wakefield, W. H., Charlotte Ky. Coll. of Med., 1890.	1891	1893
Whisnant, A. M., Charlotte P. & S., Balto., 1893.	1893	1895
Whiteside, Margaret, Charlotte Woman's Med. Coll., Pa., 1912.	1912	1913
Witherbee, W. D., Charlotte McGill Univ., 1899.	1905	1905
Witherspoon, B. J., Charlotte S. C. Med. Coll., 1894.	1900	1906
Wright, T. H., Charlotte Univ. of Va., 1901.	1904	1904
Craven, W. W., Huntersville	....	....

MITCHELL COUNTY SOCIETY.

President, C. A. Peterson, Spruce Pine N. C. Med. Coll., 1907.	1907	1908
Secretary, R. E. Stack, Bakersville N. C. Med. Coll., 1911.	1911	1912

MONTGOMERY COUNTY SOCIETY.

President, A. F. Thompson, Troy Med. Coll. of Ind., 1895.	1895	1902
Secretary, Chas. Daligny, Troy Military Med. School, Paris, 1878.	1885	1902
Andrews, V. L., Mt. Gilead Univ. Coll. of Med., Va., 1909.	1909	1909
Dameron, E. L., Star N. C. Med. Coll., 1911.	1911	....

Name and Address	*Licensed*	*Joined State Society*
Ingram, Chas. B., Mt. Gilead	1886	1902
Jefferson, 1886.		
Shamburger, J. B., Star	1890	1892
Univ. of Md., 1890.		

MOORE COUNTY SOCIETY.

President, H. B. Shields, Carthage	1887	1904
Atlanta Med. Coll., 1882.		
Secretary, J. H. Hatthews, Vass	1907	1908
Univ. of N. C., 1907.		
Achorn, J. W., Pine Bluff	1899	....
Med. School of Me., 1887; Bellevue, 1889.		
Bethune, A. C., Vass	1897	....
Blair, A. McN., Southern Pines	1905	1905
Univ. of N. Y. ,1897.		
Davis, J. F., Glendon	1912	....
Med. Coll. of Va., 1912.		
Grier, C. T., Carthage	....	....
Matthews, M. L., Cameron	1903	1903
Univ. of N. C., 1903.		
McDonald, A. C., Jackson Springs	1905	1912
N. C. Med. Coll., 1905.		
McLeod, A. H., Aberdeen	1896	1904
Balto. Med. Coll., 1896.		
McLeod, G. M., Carthage	1885	1904
Univ. of Md., 1882.		
McMillan, J. M., Hemp	1909	1910
Atlanta Coll. of P. & S., 1909.		
Mudgett, Wm. C., Southern Pines	1908	1908
Univ. of Md., 1903.		
Street, M. E., Glendon	1893	....
P. & S., Balto., 1893.		
Swett, W. P., Southern Pines	....	1901
Univ. of Vermont, 1896.		
Thompson, Fred., Pine Bluff	1912	....
Harvard, 1888.		

NASH COUNTY SOCIETY.

President, J. P. Battle, Nashville	1899	....
Univ. of Md., 1889.		
Secretary, J. L. Lane, Rocky Mount	1906	1906
N. C. Med. Coll., 1906.		
Battle, I. P., Rocky Mount	1905	....
Jefferson, 1904.		
Brantley, H., Spring Hope	1888	....
Jefferson, 1888.		
Braswell, J. C., Whitaker	1883	....
Univ. of Md., 1882.		
Dean, T. J., Nashville	1910	....
Univ. of the South, 1908.		
Dixon, D. R., Rocky Mount	1909	....
Univ. Coll. of Med., Va., 1906.		
Ellen, C. J., Battleboro, R. F. D	1911	....
Univ. Coll. of Med., Va., 1911.		
Kornegay, L. W., Rocky Mount	1906	1906
N. C. Med. Coll., 1906.		
Marriott, H. B., Battleboro	1883	....
Missouri Med. Coll., 1883.		

Name and Address	*Licensed*	*Joined State Society*
Matthews, T. A., Castalia Univ. of Md., 1890.	1891	....
McCall, A. C., Rocky Mount Univ. of Md., 1910.	1910	....
Newell, J. O., Nashville	....	....
Quillen, E. B., Rocky Mount Univ. of Md., 1904.	1906	....
Staley, S. W., Rocky Mount Med. Coll. of S. C., 1901.	1901	....
Strickland, J. T., Nashville Univ. of Md., 1890.	1890	....
Washburn, B. E., Nashville Univ. of Va., 1910.	1912	1913
Whitaker, H. H., Nashville Univ. of Md., 1883.	1883	....
Whitehead, J. P., Rocky Mount Univ. of Md., 1899.	1899	....

NEW HANOVER COUNTY SOCIETY.

President, C. T. Harper, Wilmington Univ. of Md., 1893.	1893	1904
Secretary, E. S. Bullock, Wilmington Univ. of Md., 1911.	1911	1911
Akerman, Jos., Wilmington Johns Hopkins, 1905.	1905	1906
Bellamy, R. H., Wilmington Jefferson, 1902.	1902	1902
Bellamy, W. J. H. (Hon.), Wilmington	....	....
Bullock, D. W. (Hon.), Wilmington (deceased May 7, 1903) Univ. of Md., 1873.	1875	1875
Caldwell, M. M., Wilmington Jefferson Med. Coll., 1901.	1906	1907
Cranmer, J. B., Wilmington Univ. of N. C., 1905.	1905	1906
Green, T. M., Wilmington Univ. of Md., 1900.	1900	1903
Guin, J. L., Wilmington Tulane, 1913.	1913	1913
Hall, Wright (Hon.), Wilmington Univ. of Md., 1900.	1900	1900
Harris, A. H., Wilmington Medico-Chir., Phila., 1893.	1892	1904
Honnett, J. H., Wilmington P. & S., N. Y., 1900.	1901	1904
Koonce, S. E., Wilmington P. and S., Balto., 1896.	1896	1900
Love, W. J., (Hon.), Wilmington S. C. Med. Coll., 1861.	1861	1870
McMillan, W. D., (Hon.), Wilmington Univ. of Md., 1869.	1885	....
McDonald, A. D. (Hon.), Wilmington Wash. Univ., Balto., 1877.	1877	1877
Moore, H. T., Wilmington Tulane, 1913.	1913	1913
Moore, W. H., Wilmington Jefferson, 1910.	1910	1911
Murphy, J. G., Wilmington Univ. of Louisville, 1903.	1903	1905

Name and Address	*Licensed*	*Joined State Society*
Nesbitt, C. T., Wilmington Balto. Med. Coll., 1903.	1907	1908
Russell, Frank H., Wilmington Univ. of Md., 1893.	1893	1893
Schonwald, J. L. (Hon.), Wilmington	1880	1904
Slocum, R. D., Wilmington Johns Hopkins, 1905.	1907	1908
Thames, John, Wilmington Louisville Med. Coll., 1894.	1894	1895
Thomas, G. G. (Hon.), Wilmington Univ. of Md., 1871.	1871	1871
Wessell, J. C., Wilmington Univ. of Md., 1900.	1900	1900
Wood, E. J., Wilmington Univ. of Pa., 1902.	1903	1903

NORTHAMPTON COUNTY SOCIETY.

President, J. L. Lister, Jackson Med. Coll. of Va., 1896.	1896	1909
Secretary, P. C. Brittle, Conway Univ. Coll. of Med., 1907.	1907	1907
Bolton, Mahlon, Rich Square Jefferson, 1885.	1885	1885
Cooke, Q. H., Woodland Univ. of N. C., 1905.	1905	1907
Joyner, T. O., Severn Univ. Coll. of Med., 1899.	1899	1900
Lassiter, E. W., Rich Square Univ. Coll. of Med., Va., 1908.	1908	1908
Lewis, H. W., Jackson Univ. of N. Y., 1877.	1885	1887
Naff, G. N., Garysburg Med. Coll. of Va., 1908.	1911	....
Parker, C. G., Woodland Univ. Coll. of Med., Va., 1907.	1907	1909
Stancell, R. H., Margaretsville Med. Coll. of Va., 1865; Bellevue, 1870.	1865	1885
Stephenson, M. R., Seaboard Univ. of Md., 1881.	1881	1914
Whims, T. G., Lasker Univ. of Md., 1911.	1911	1911

ONSLOW COUNTY SOCIETY.

President, Cyrus Thompson, Jacksonville Univ. of Pa., 1878.	....	1905
Secretary, E. L. Cox, Jacksonville Univ. of Md., 1889.	1889	1892
Brown, F. L., Scott's Hill N. C. Med. Coll., 1909	1910	1912
Bryan, L. D., Snead's Ferry Tulane, 1910.	1910	1910
Daniels, R. L., Swansboro Med. Coll. of Va., 1912.	1912	....
Hammond, A. F., Polloksville Univ. Coll. of Med., Va., 1903.	1903	....
Hughes, G. R., Polloksville Univ. of N. Y., 1888.	1888	1824

Name and Address	*Licensed*	*Joined State Society*
Hyatt, H. O., Kinston Univ. of Pa., 1868.	1870	1870
Nicholson, J. L. (Hon.), Richlands Univ. Med. Coll., N. Y., 1875.	1875	1880
Sutton, C. W., Richlands Tulane, 1905.	1905	1905

PAMLICO COUNTY SOCIETY.

President, G. S. Attmore (Hon.), Stonewall Wash. Univ., Balto., 1870.	1870	1872
Secretary	....	....
Dees, D. A., Bayboro Balto. Med. Coll., 1903.	1903	1903
Griggs, Wm. F., Oriental Med. Coll. of Va., 1909.	1911	....
McCotter, S. E., Bayboro P. & S., Atlanta.	1908	1908
Watts, R. E., Oriental Med. Coll. of Va., 1911.	1913	....
Saliba, John, Elizabeth City Univ. of Edinburgh, 1893.	1869	....

PASQUOTANK-CAMDEN-DARE COUNTY SOCIETY.

President,	....	....
Secretary, C. W. Sawyer, Elizabeth City Univ. of Md., 1886.	1885	1904
Aydlett, H. T., Elizabeth City Univ. of Va., 1894.	1895	1896
Cohn, B. W., South Mills Med. Coll. of Va., 1884.	1901	....
Fearing, Isaiah, Elizabeth City P. & S., Balto., 1896.	1896	1904
Fearing, Zenas, Elizabeth City Univ. Coll. of Med., Va., 1901.	1901	1904
Griggs, J. B., Elizabeth City Univ. of Md., 1892.	1892	1904
Hoggard, W. A., Woodville Univ. Coll. of Med., Va., 1907.	1907	....
Lumsden, W. J., Elizabeth City Univ. of Md., 1869.	1885	1888
McMullan, Oscar, Elizabeth City Univ. of Va., 1880.	1885	1889
Sawyer, W. W., Elizabeth City Univ. of Md., 1903.	1903	1905
Stephens, W. L., Indian Town Univ. Coll. of Med., Va., 1912.	1912	....
Walker, H. D., Elizabeth City Univ. of Md., 1902.	1902	1902
Williams, C. B., Elizabeth City Univ. Coll. of Med., Va., 1903.	1903	1906
Wright, S. G., Elizabeth City, R. F. D.	....	....

PERSON COUNTY SOCIETY.

President, R. S. Baynes, Hurdle Mills P. & S., Balto., 1881.	1881	1904
Secretary, A. F. Nichols, Roxboro Univ. of N. C., 1908.	1908	1908

Name and Address	*Licensed*	*Joined State Society*
Bradsher, W. A., Roxboro Univ. of Md., 1904.	1904	1905
Gentry, G. W., Timberlake Univ. of N. C., 1910.	1910	1911
Long, W. T., Roxboro Balto. Med. Coll., 1905.	1905	1907
Merritt, J. H., Woodsdale Univ. of N. C., 1906.	1907	1908
Nichols, C. G., Roxboro Bellevue (non-graduate), 1885.	1885	1891
Swann, J. F., Semora P. & S., Balto., 1898.	1898	1904

PITT COUNTY SOCIETY.

President,	....	....
Secretary,	....	....
Griffin, C. O., Bethel Univ. of Pa., 1910.	1910	....
Jones, C. M., Grimesland Univ. of Md., 1892.	1892	1895
Laughinghouse, Charles O'H., Greenville Univ. of Pa., 1893.	1893	1894
Whitfield, W. C., Grifton Univ. of Md., 1884.	1884	....
Nobles, J. E. (Hon.), Greenville Jefferson, 1898.	1899	1902

RANDOLPH COUNTY SOCIETY.

President, W. I. Sumner, Randleman Univ. of Tenn., 1893.	1894	1894
Secretary, W. J. Moore, Asheboro P. & S., Balto., 1893.	1893	1901
Asbury, F. E. (Hon.), Worthville S. C. Med. Coll., 1876.	1885	1896
Caddell, S. W., Ramseur Univ. of Tenn., 1892.	....	....
Craven, F. C., Ramseur Univ. of Md., 1913.	1913	....
Fox, T. I., Franklinville Vanderbilt, 1894.	1899	1904
Hayworth, C. A., Coleridge Univ. of Md., 1913.	1913	1913
Hubbard, C. C., Farmer Jefferson, 1888.	1890	1904
Redding, A. H., Coleridge P. & S., Balto., 1887.	1881	1884
Tate, C. S., Ramseur Balto. Med. Coll., 1893.	1896	....
Wilkerson, C. E., Randleman Univ. of Nashville, 1907.	1908	1908
Hunter, J. V., Asheboro Univ. of Louisville, 1898.	1898	....

RICHMOND COUNTY SOCIETY.

President, A. C. Everett, Rockingham Univ. of Md., 1897.	1897	....
Secretary, W. C. Terry, Hamlet N. C. Med. Coll., 1911; Univ. of Md., 1912.	1912	....

Name and Address	*Licensed*	*Joined State Society*
Fowlkes, J. I., Hamlet P. & S., Atlanta, 1903.	1903	....
Garrett, F. B., Rockingham N. C. Med. Coll., 1912.	1912	....
Garrett, Frank J., Rockingham Univ. of Md., 1889.	1887	....
Howell, W. L., Ellerbe, R. F. D.	1910	....
Hunter, N. C., Rockingham Medico-Chir., Phila., 1899.	1899	....
Kinsman, H. F., Hamlet Univ. of Vermont, 1894.	1897	....
Ledbetter, J. M., Rockingham Vanderbilt, 1894.	1894	....
McPhail, L. D., Rockingham Univ. of Md., 1900.	1900	....

ROBESON COUNTY SOCIETY.

President, J. L. McMillan, Red Springs Univ. of Md., 1881.	1881	1881
Secretary, H. H. Hodgin, Red Springs Univ. of Md., 1905.	1906	1906
Andrews, N. H., Pembroke N. C. Med. Coll., 1911.	1911	....
Brown, J. P., Fairmont Univ. of Md., 1883.	1887	1887
Croom, A. B., Maxton Univ. of Md., 1905.	1905	1905
Croom, G. H., Maxton	1909	....
Currie, D. S., Parkton N. C. Med. Coll., 1906.	1906	1906
Evans, W. E., Rowland Med. Coll. of Va., 1894.	1894	1894
Grantham, W. L., Lumberton N. C. Med. Coll., 1906.	1906	1906
Harris, D. W., Maxton Univ. of N. C., 1908.	1903	1911
Kirkpatrick, L. R., Maxton N. C. Med. Coll., 1902.	1902	1902
McClelland, J. O., Maxton Univ. Coll. of Med., Va., 1908.	1912	1912
McMillan, B. F., Red Springs Univ. of Md., 1882.	1884	1884
McMillan, R. D., Red Springs Univ. of Md., 1910.	1911	1912
McPhaul, W. A., Lumberton Univ. of Nashville, 1904.	1905	1906
Page, B. W., Lumberton Tulane, 1909.	1909	1910
Pate, F. J., Winston-Salem Univ. of Md., 1908.	1908	....
Pope, H. T., Lumberton N. C. Med. Coll., 1894.	1893	1894
Reedy, Howard, Rowland Med. Coll. of S. C., 1884.	1887	1887
Ricks, L. E., Fairmont Med. Coll. of Va., 1896.	1896	1898
Schubert, L. H., Aurora Tenn. Med. Coll., 1908.	1908	1909

Name and Address	*Licensed*	*Joined State Society*
Smith, J. McN., Rowland Jefferson, 1908.	1908	1908
Stamps, Thomas, Lumber Bridge Univ. of Louisville, 1888.	1888	1888
Thompson, N. A., Lumberton Md. Med. Coll., 1905.	1895	1904

ROCKINGHAM COUNTY SOCIETY.

President, J. W. McGehee, Reidsville Univ. of Md., 1904.	1904	1904
Secretary, J. B. Ray, Leaksville Balto. Med. Coll., 1898.	1898	1898
Abernethy, M. B., Reidsville N. C. Med. Coll., 1906.	1906	1906
Boaz, T. A., Stoneville P. & S., Balto., 1892.	1892	1892
Cummins, M., Reidsville Jefferson, 1911.	1911	1911
Ellington, Samuel, Wentworth Jefferson, 1877.	....	....
Flack, R. E., Spray Johns Hopkins, 1913.	1913	....
Jett, S. G., Reidsville Univ. of the South, 1903.	1908	1903
Johnson, W. A., Reidsville N. C. Med. Coll., 1907.	1909	1909
Martin, S. L., Leaksville Balto. Med. Coll., 1892.	1892	1896
McBryde, M. H., Reidsville Univ. of Md., 1901.	1901	1904
Robinson, Harvey, Reidsville	....	....
Sweaney, John, Leaksville P. & S., Balto., 1886.	....	1888
Taylor, J. T., Madison Univ. of Md., 1908.	1907	1908
Taylor, T. G., Leaksville Ky. School of Med., 1877.	1877	....
Tuttle, A. F., Spray N. C. Med. Coll., 1901.	1901	1901
Webb, S. E., Draper N. C. Med. Coll., 1908.	1908	1908
Wharton, C. R., Ruffin Med. Coll. of Va., 1897.	1897	1897
Matheson, R. C., Madison P. & S., Balto., 1891.	1891	....

ROWAN COUNTY SOCIETY.

President, R. V. Brawley, Salisbury Univ. Coll. of Med., Va., 1903.	1903	1904
Secretary, E. W. Currie, Salisbury N. C. Med. Coll., 1907.	1907	1907
Boyden, W. C., China Grove N, C. Med. Coll., 1913.	1913	1914
Brawley, M. H., Salisbury N. C. Med. Coll., 1910.	1912	1914
Brown, George A., Mt. Ulla Univ. Coll. of Med., Va., 1897.	1897	1898

Name and Address	*Licensed*	*Joined State Society*
Busby, J. G., Spencer	1904	1904
Univ. of Md., 1904.		
Choate, G. W., Rockwell	1909	1909
N. C. Med. Coll., 1909.		
Clement, E. B., Atlantic City, N. J.	....	....
Councill, J. B., Salisbury	1885	1885
P. & S., Balto., 1884.		
Crump, W. L., Salisbury	1881	1904
Jefferson, 1879.		
Edwards, B. O., Landis	1905	1905
N. C. Med. Coll., 1905.		
Heilig, H. G., Salisbury	1899	1899
Univ. of Md., 1899.		
McKenzie, W. W., Salisbury	1893	1894
Jefferson, 1893.		
Monk, G. M., Spencer	1908	1908
Univ. of N. C., 1908.		
Monk, H. L., Spencer	1899	1903
Med. Coll. of Va., 1897.		
Ramseur, G. A., China Grove	1886	1898
Jefferson, 1880.		
Shafer, I. E., Gold Hill	1914	1914
N. C. Med. Coll., 1914.		
Sigmon, F. G., Spencer	1909	1909
Univ. Coll. of Med., Va., 1909.		
Spencer, F. B., Salisbury	1909	1910
Univ. of N. C., 1909.		
Stokes, J. E., Salisbury	1900	1901
Univ. of Md., 1892.		
Summerell, E. N. (Hon.), China Grove, R. F. D.	1883	1883
Univ. of Pa., 1883.		
Trantham, H. L. (Hon.), Salisbury	1878	1879
Univ. of N. Y., 1875.		
Van Poole, C. M. (Hon.), Salisbury	1880	1880
P. & S., Balto., 1880.		
West, R. M., Salisbury	1900	1904
Med. Coll. of Va., 1900.		
Whitehead, J. W. (Hon.), Salisbury	1880	1880
Univ. of Pa., 1880.		
Woodson, C. W., Salisbury	1905	1907
P. & S., N. Y., 1904.		

RUTHERFORD COUNTY SOCIETY.

President, J. B. Thompson, Bostic, R. F. D. No. 1	1898	1904
P. & S., Balto., 1898.		
Secretary, M. H. Biggs, Rutherfordton	1907	1907
Univ. of Pa., 1897.		
Allhand, J. M., Cliffside	1910	1910
Chicago Coll. Med. & Surg., 1910.		
Andrews, R. M., Union Mills, R. F. D.	1904	1904
Memphis Hosp. Med. Coll., 1904.		
Beam, R. S., Lumberton	1912	1913
Jefferson, 1912.		
Bostic, W. C., Forest City	1905	1905
N. C. Med. Coll., 1905.		
Gold, C. F., Ellenboro	1910	1910
Univ. of N. C., 1910.		
Harrell, L. B., Caroleen	1902	1904
Grant Univ., 1897.		

Name and Address	*Licensed*	*Joined State Society*
Harris, E. B., Rutherfordton	1885	1906
P. & S., Balto., 1876.		
Hicks, R., Henrietta, R. F. D.	....	1904
Sou. Med., Atlanta, 1888.		
Lovelace, T. B., Henrietta, R. F. D.	1885	1904
P. & S., Balto., 1883.		
McDaniel, C. B., Rutherfordton	1913	1913
N. C. Med. Coll., 1913.		
Norris, Henry, Rutherfordton	1907	1906
Univ. of Penn., 1896.		
Reid, C. P., Forest City	1894	1899
Univ. Coll. Med., Va., 1895.		
Rucker, A. A., Rutherfordton	1908	1908
Univ. of Md., 1908.		
Shull, J. R., Cliffside	1911	1912
Univ. of Pa., 1911.		
Smart, J. B., Forest City	1907	1911
Grant Univ., 1900.		
Thompson, W. A., Rutherfordton	1895	1904
P. & S., Balto., 1885.		
Twitty, J. C., Rutherfordton	1892	1906
Balto. Med. Coll., 1892.		
Wiseman, C. B., Henrietta	1902	1902
P. & S., Balto., 1902.		

SAMPSON COUNTY SOCIETY.

President, O. E. Underwood, Roseboro	1909	1910
Univ. Coll. of Med., Richmond, Va., 1909.		
Secretary, G. M. Cooper, Clinton	1905	1905
Univ. Coll. of Med., Richmond, Va., 1905.		
Crumpler, P., Clinton	1907	1907
Univ. of Tenn., 1907.		
Holmes, F. H., Clinton	1895	1895
Univ. of Md., 1895.		
Kerr, J. D., Jr., Clinton	1908	1909
Univ. of Md., 1908.		
Mathews, J. O., Clinton	1897	1898
U. C. M., Richmond, 1897.		
McLean, R. H., Dunn, R. F. D. No. 5	1882	1887
P. & S., Balto., 1882.		
Sikes, G. L., Salemburg	1900	1900
Univ. Coll. of Med., Richmond, 1900.		
Sloan, H., Ingold	1885	1885
S. C. Med. Coll., 1881.		
Stevens, J. A., Clinton	1883	1883
Jefferson, 1883.		
Taylor, W. I., Kerr	1904	1905
N. C. Med. Coll., 1902.		
Turlington, H. C., Cooper, R. F. D.	1913	1914
Univ. Coll. of Med., Richmond, Va., 1913.		
Williams, T. G., Turkey	1913	1914
Geo. Washington, 1911.		
Wilson, R. B., Newton Grove	1889	1904
Ky. Sch. of Med., 1889.		

SCOTLAND COUNTY SOCIETY.

President, G. D. Everington, Laurinburg	1898	1898
N. C. Med. Coll., 1899.		
Secretary, P. McLean, Laurinburg	1907	1907
Univ. of Md., 1906.		

Name and Address	*Licensed*	*Joined State Society*
Erwin, E. W., Lauringburg	1912	1913
Med. Coll. of S. C., 1912.		
Gibson, J. S., Gibson	1905	1905
Univ. of Md., 1905.		
James, W. D., Lauringburg	1908	1908
Jefferson, 1908.		
John, P., Lauringburg	1897	1904
Univ. of Md., 1897.		
Livingston, E., Gibson	1912	1912
Univ. of Md., 1912.		
McLean, A., Wagram	1908	1908
Univ. of Md., 1908.		
Pate, W. T., Gibson	1895	1895
P. &. S., Balto., 1895.		
Prince, D. M. (Hon.), Laurinburg	1871	1878
S. C. Med. Coll., 1871.		
Shaw, W. G., Wagram	1895	1904
P. & S., Balto., 1892.		
Wilcox, J. W., Laurel Hill	1906	1906
Univ. of N. C., 1906.		

STANLY COUNTY SOCIETY.

President	....	....
Secretary	....	....
Allen, J. A., New London	1901	1906
Univ. Coll. Med., 1901.		
Anderson, J. N., Albemarle	1895	1895
Univ. of Md., 1895.		
Blalock, B. F., Norwood	1913	....
Univ. of Md., 1913.		
Campbell, J. I., Norwood	1898	....
Cox, B. F., Palmerville	1886	1888
P. & S., Balto., 1886.		
Dunlap, L. V., Albemarle	1909	....
Univ. of N. C., 1909.		
Hall, J. C., Albemarle	1899	1899
Univ. Coll. of Med., Va., 1890.		
Hartsell, F. E., Big Lick	1895	1905
Balto. Med. Coll., 1895.		
Hathcock, T. A., Norwood	1893	1904
Univ. of Md., 1893.		
Hill, W. J., Albemarle	1897	1904
Univ. of Md., 1897.		
Laton, J. F., Albemarle	1904	1908
N. C. Med. Coll., 1904.		
Magruder, L. F., Albemarle	1913	....
Tulane Univ., 1905.		
Whitley, D. P., Albemarle	1890	1890
Univ. of Md., 1889.		

STOKES COUNTY SOCIETY.

President, J. H. Ellington, Sandy Ridge	1885	1904
P. & S., Balto., 1872.		
Secretary, W. V. McCanless, Danbury	....	1904
P. & S., Balto., 1888.		
Hill, L. H. (Hon.), Germanton	1877	1877
Jefferson, 1861.		
Jones, A. G., Walnut Cove	1894	1904
Univ. of N. Y., 1868.		

Name and Address	*Licensed*	*Joined State Society*
Leak, J. J., Dan River	....	1901
Univ. Coll. of Med., Richmond, Va., 1901.		
McCanless, W. L., Danbury	1893	1904
Univ. of N. Y., 1893.		
Moir, S. A., Francisco	....	....
P. & S., Balto., 1888.		
Moore, W. B., Smith	1893	1904
P. & S., Balto., 1893.		
Neal, J. W., Meadows	1887	1904
P. & S., Balto., 1889.		
Phillips, M. D., Dalton	1881	1904
Univ. of N. Y., 1881.		
Slate, W. C., Danbury	1903	....
Univ. of Tenn., 1903.		
Tuttle, R. G., Walnut Cove	1909	....
N. C. Med. Coll., 1909.		

SURRY COUNTY SOCIETY.

President, J. W. Ring, Elkin	1885	1904
P. & S., Balto., 1880.		
Secretary, E. M. Hollingsworth, Mt. Airy	1886	1904
P. & S., Balto., 1886.		
Absher, D. C., Mt. Airy	1909	1910
Univ. of Md., 1909.		
Allred, E. B., Mt. Airy	1877	1904
Jefferson, 1877.		
Ashby, T. B., Mt. Airy	1885	1896
P. and S., Balto., 1885.		
Baird, C. A., Mt. Airy	1909	1909
N. C. Med. Coll., 1904.		
Flippin, J. M., Mt. Airy	1884	1893
P. & S., Balto., 1884.		
Flippin, R. E. L., Pilot Mt.	1897	1897
Balto. Med. Coll., 1892.		
Flippin, S. T., Siloam	1898	1898
N. C. Med. Coll., 1898.		
Hollingsworth, R. E., Mt. Airy	1898	1898
Univ. Coll. Med., Va., 1898.		
Lovill, R. J., Dobson	1910	1910
Univ. of Md., 1910.		
Martin, J. H., Rockford, R. F. D. No. 1	1904	....
Univ. Nashville, 1903.		
Reece, J. M., Elkin	....	1904
P. & S., Balto., 1886.		
Rowe, H. B., Mount Airy	1910	1912
Univ. of Md., 1910.		
Royall, M. A., Elkin	1885	1891
P. & S., Balto., 1885.		
Salmon, L. R., Elkin	1912	....
N. C. Med. Coll., 1912.		
Smith, J. B., Pilot Mountain	1885	1896
Stone, W. M., Dobson	1906	1907
N. C. Med. Coll., 1906.		
Taylor, W. S., Mt. Airy	1874	1894
Jefferson, 1874.		
Wellborn, W. R., Elkin	1908	1908
N. C. Med. Coll., 1905.		
Woltz, J. L., Mt. Airy	1902	1902
Southern Med., Ga., 1897.		

TRANSYLVANIA COUNTY SOCIETY.

Name and Address	*Licensed*	*Joined State Society*
President, C. W. Hunt, Brevard P. & S., Balto., 1880.	1880	1903
Secretary, E. S. English, Brevard Univ. of the South, 1901.	1902	1902
Cheatham, Goode, Brevard N. C. Med. Coll., 1895.	1895	1896
King, M. N., Brevard Ga. Coll. Eclec. Med. & Surg., 1881.	1898	....
Lyday, A. E., Penroes Tenn. Med. Coll., 1891.	1909	1900
Lyday, C. E., Rosman Atlanta Med. Coll., 1910.	1911	1911
Wallis, W. J., Brevard P. & S., Balto., 1892.	1892	1903

UNION COUNTY SOCIETY.

President, R. L. Payne, Monroe Tulane Univ., 1911.	1911	1912
Secretary, H. D. Stewart, Monroe Univ. of Md., 1898.	1898	1898
Armfield, Romulus, Marshville Med. Coll. of Va.	1883	1904
Ashcraft, J. E., Monroe Univ. of N. Y., 1887.	1887	1888
Blair, J. M., Monroe Louisville Med. Coll., 1887.	1886	1886
Blair, M. P., Marshville Med. Coll. of Va., 1895.	1895	1895
Brooks, M., Marshville Balto. Med. Coll., 1880.	1880	1914
Eubanks, J. B., Monroe Vanderbilt, 1887.	1887	1904
Fitzgerald, J. Y., Indian Trail Jefferson, 1889.	1889	1889
Guin, L. E., Waxhaw N. C. Med. Coll., 1907.	1907	1908
Jerome, J. R., Wingate Univ. of Md., 1890.	1890	1904
Nance, G. B., Monroe Jefferson, 1885.	1885	1885
Neal, J. W., Monroe Univ. of N. Y. Med. Coll., 1884.	1887	1902
Perkins, D. R., Marshville Balto. Med. Coll., 1903.	1906	1906
Stevens, S. A., Monroe Univ. of Md., 1900.	1898	1898
Whitley, A. D. N., Unionville Univ. of Md., 1897.	1897	1904

VANCE COUNTY SOCIETY.

President	....	....
Secretary, L. C. MacIntosh, Henderson P. & S., Atlanta, 1913.	....	....
Allen, B. G., Henderson Bellevue Med. Coll., 1904.	1904	1904
Bass, H. H. Henderson Univ. of Md., 1899.	1899	1900

Name and Address	*Licensed*	*Joined State Society*
Fenner, E. F., Henderson Univ. of Md., 1905.	1906	1907
Furman, W. H., Henderson Jefferson, 1910.	1910	....
Gill, R. J., Henderson Univ. of Penn., 1880.	1880	1890
Harris, F. R., Henderson Univ. of Va., 1881.	1883	....
McAllister, W., Middleburg P. & S., Balto., 1890.	1890	....
Perkins, F. E., Henderson Univ. of N. Y., 1905.	1905	1911
Upchurch, R. T., Henderson Jefferson, 1908.	1908	....

WAKE COUNTY SOCIETY.

President, J. A. Strickland, Zebulon Univ. of N. C., 1909.	1909	1910
Secretary, W. C. Horton, Raleigh P. & S., Balto., 1897.	1896	1896
Abernethy, C. O., Raleigh Univ. of N. C., 1906.	1906	1906
Anderson, A., Raleigh Univ. of Va., 1888.	1888	1889
Barbee, G. S., Wendell	1910	....
Battle, K. P., (Hon.), Jr., Raleigh Univ. of Va., 1881.	....	1889
Bell, G. M., Wakefield P. & S., Balto., 1883.	1885	....
Buffalo, J. S., Garner Balto. Med. Coll., 1900.	1900	....
Burtt, B. W., New Hill P. & S., Balto., 1886.	1886	....
Campbell, A. C., Raleigh Univ. of N. C., 1910.	1910	1912
Carroll, E. D. D., Raleigh Woman's Med. Coll., N. Y., 1895.	1900	1900
Caveness, Z. M., Raleigh Med. Dept. of U. N. C., 1903.	1903	1903
Coppedge, T. O., Raleigh P. & S., Balto., 1908.	1909	....
Ferebee, E. B., Raleigh P. & S., Balto., 1885.	1885	....
Ferrell, J. A., Raleigh Univ. of N. C., 1907.	1907	1908
Gibson, M. R., Raleigh Univ. of Md., 1905.	1905	....
Goodwin, A. W., Raleigh Bellevue, 1887.	1889	1889
Haywood, Hubert, Raleigh Bellevue, 1879.	1889	1889
Haywood, H. B., Jr., Raleigh Univ. of Pa., 1909.	1909	....
Hester, J. R., Knightdale Univ. of N. C., 1910.	1910	....
Jenkins, C. L., Raleigh N. Y. Univ. Med. Coll., 1890.	1890	....
Johnson, R. W., Apex Univ. of Tenn., 1909.	1901	1901

Name and Address	*Licensed*	*Joined State Society*
Jordan, T. M., Raleigh	1881	1881
P. & S., Balto., 1881.		
Judd, E. C., Raleigh	1911	....
Univ. of Pa., 1911.		
Knox, A. W., Raleigh	1878	1880
Bellevue, 1874.		
Lewis, R. H. (Hon.), Raleigh	1877	1877
Univ. of Md., 1871.		
Lowery, J. R., Raleigh	1904	....
Univ. of Md., 1904.		
McCullers, J. J .L., McCullers	1886	1886
P. & S., Balto., 1886.		
McGeachey, R. S., Raleigh	1894	....
Bellevue, 1894.		
McGee, J. W., Raleigh	1888	1888
Bellevue, 1888.		
McKee, J. S., Raleigh	1908	....
Univ. of Md., 1907.		
Moore, J. L., Wendell	1886	1892
P. & S., Balto., 1886.		
Pendleton, A. S., Raleigh	1898	1899
Univ. of Pa., 1895.		
Penny, J. A. J., Vanteen	....	1904
Univ. of N. Y., 1861.		
Powers, J. B., Sr., Wake Forest	1885	1904
Long Island Med. Coll., 1878.		
Rankin, W. S., Raleigh	1901	1901
Univ. of Md., 1901.		
Ray, O. L., Raleigh	1899	1904
Univ. Coll. Med., Va., 1899.		
Riggsbee, A. E., Morrisville	1909	....
Univ. of N. C., 1909.		
Rogers, J. R., Raleigh	1886	1886
P. & S., Balto., 1886.		
Root, A. S., Raleigh	1911	....
Univ. of Pa., 1911.		
Royster, H. A., Raleigh	1894	1895
Univ. of Pa., 1894.		
Royster, W. I. (Hon.), Raleigh	1869	1870
Bellevue, 1869.		
Shore, C. A., Raleigh	1909	1909
Johns Hopkins, 1907.		
Sorrell, L. F., Raleigh	....	1904
Med. Coll. Va., 1875.		
Stancell, W. W., Raleigh	1906	....
Univ. Coll. of Med., Va., 1906.		
Templeton, J. M., Cary	1882	1904
Balto. Med. Coll., 1882.		
Thompson, S. W., Neuse	....	1904
Med. Coll. of Va., 1875.		
Tucker, H. McK., Raleigh	1899	1899
Univ. of Md., 1899.		
Turner, H. G., Raleigh	1907	....
Univ. of Pa., 1906.		
Underhill, H. P., Wendell	1901	1901
Univ. Coll. of Med., 1901.		
Whitaker, J. D., Raleigh	....	....
Wilkerson, C. B., Apex	1906	....
Univ. of N. C., 1906.		
Young, L. B., Rolesville	1886	....
P. & S., Balto., 1886.		

WARREN COUNTY SOCIETY.

Name and Address	*Licensed*	*Joined State Society*
President, P. J. Macon, Warrenton	1883	1883
Univ. of Md., 1883.		
Secretary, C. H. Peete, Warrenton	1906	1906
Univ. of Va., 1903.		
Holt, J. H., Wise	1904	1904
Med. Coll. of Va., 1904.		
Macon, G. H., Warrenton	1910	1910
Univ. Coll. Med. Va., 1910.		
Perry, M. P., Macon	1884	1884
Coll. P. & S., Md., 1884.		

WASHINGTON-TYRRELL COUNTY SOCIETY.

President, M. H. Hardison, Creswell	1871	1904
Wash. Univ., Balto., Md., 1870.		
Secretary, W. H. Ward (Hon.), Plymouth	1886	1900
Univ. of Md., 1881.		
Flowers, C. A., Columbia	1907	1907
P. & S., Balto., 1905.		
Gilmer, B. H., Plymouth	1910	1910
Univ. Coll. of Med. Va., 1903.		
Halsey, B. F., Roper	1894	1894
Vanderbilt, 1893.		
Hassell, J. L., Creswell	1886	1886
P. and S., Balto., 1886.		
Marriner, N. B., Belhaven	1903	1908
Univ. Coll. Med. Va., 1903.		
Speight, J. W., Roper	1885	1908
Ky. Sch. of Med., 1885.		
Spruill, J. L., Columbia	1895	1908
Univ. of Md., 1895.		

WAYNE COUNTY SOCIETY.

President, M. E. Robinson, Goldsboro	....	1880
Wash. Univ., Balto., 1870.		
Secretary, T. L. Ginn, Goldsboro	1901	1904
Med. Coll. of Va., 1901.		
Bizzell, T. M., Goldsboro	1908	1908
Univ. of Md., 1908.		
Brothers, J. E., Goldsboro	1874	1910
Bellevue, 1874.		
Daniels, O. C., Goldsboro	1903	....
Med. Coll. of Va., 1903.		
Faison, W. W. (Hon.), Goldsboro	1883	1904
Jefferson, 1878.		
Kennedy, J. B., Goldsboro	....	1904
Univ. of Nashville, 1870.		
Miller, J. F., Goldsboro	....	....
Lee, R. E., Goldsboro	1896	1898
Univ. of Md., 1896.		
Morris, G. B., Mt. Olive	1910	....
Univ. of Md., 1910.		
Parker, J. R., Goldsboro	1904	1904
Univ. Coll. Med., Va., 1901.		
Smith, R. A. (Hon.), Goldsboro	1882	1882
Vanderbilt, 1879.		
Strosnider, C. F., Mt. Olive	1910	1913
Univ. of Md., 1909.		

WILKES COUNTY SOCIETY.

Name and Address	*Licensed*	*Joined State Society*
President, W. P. Horton, North Wilkesboro Balto. Med. Coll., 1892.	1896	1904
Secretary, C. S. Sink, North Wilkesboro N. C. Med. Coll., 1912.	1912	1912
Gilreath, F. H., North Wilkesboro Univ. of Nashville, Tenn., 1898.	1898	1898
Pegram, R. W. S., Wilkesboro, R. F. D. No. 2 Balto. Med. Coll., 1892.	1894	....
Somers, L. P., Osbornville	....	....
Townsend, M. L., North Wilkesboro Indiana Med. Col., 1906.	1912	1913
Turner, J. M., North Wilkesboro Univ. Louisville, Ky., 1881.	1885	1904
White, J. W., Wilkesboro Jefferson, 1889.	1889	1890

WILSON COUNTY SOCIETY.

President, A. F. Williams, Wilson Univ. of Md., 1901.	1901	1901
Secretary, M. M. Saliba, Wilson Balto. Med. Coll., 1897.	1910	1910
Anderson, N., Wilson Ohio Med. Coll., 1873.	1885	1885
Anderson, W. H., Wilson Univ. of Va., 1902.	1904	1903
Anderson, W. S., Wilson Washington Univ., Balto., 1868.	1880	1880
Barnes, B. F., Elm City Univ. of Md., 1902.	1902	1902
Best, H. B., Wilson Univ. of N. C., 1907.	1907	1907
Dickinson, E. T., Wilson Med. Coll. of Va., 1895.	1895	1895
Eagles, C. S., Saratoga Univ. of N. C., 1909.	1909	1909
Grady, L. V., Taylors N. C. Med. Coll., 1913.	1913	1914
Harrison, J. S., Elm City Med. Coll. of Va., 1903.	1905	1908
Herring, B. S., Wilson Univ. of Mich., 1900.	1901	1901
Hoover, H. R., Wilson Balto. Med. Coll., 1891.	1892	....
Lamm, I. W., Lucama, N. C. Univ. Coll. Med., Va., 1899.	1899	1899
Lewis, G. W., Wilson Univ. of Md.. 1886.	1885	1892
Mercer, W. P., Elm City N. Y. Univ. Med. Coll., 1879.	1879	....
Moore, C. E., Wilson Bellevue, 1875.	1875	1875
Moore, E. G., Elm City Univ. of Md., 1883.	1883	1890
Moore, K. G., Wilson Univ. of Mich., 1909.	1909	1909
Person, T. E., Stantonsburg N. C. Med. Coll., 1911.	1911	....

Name and Address	*Licensed*	*Joined State Society*
Powell, H. H., Stantonsburg Med. Coll. of Va., 1911.	1911	1914
Reed, D. H., Lucama Geo. Washington Univ., 1901.	1904	1904
Smith, G. A., Black Creek Louisville Med. Coll., 1887.	1893	1894
Swindell, C. L., Wilson Univ. of Md., 1909.	1909	1909

YADKIN COUNTY SOCIETY.

President, T. R. Harding, Yadkinville P. & S., Balto., 1885.	1885	1906
Secretary, S. A. Harding, Yadkinville N. C. Med. Coll., 1910.	1910	1914
Clingman, J. J., Cana P. & S., Balto., 1876.	....	1904
Finney, J. R., Boonville N. C. Med. Coll., 1910.	1910	1910
Holcomb, C. M., Chestnut Ridge P. & S., Balto., 1869.	....	1905
Russell, S. L., Yadkinville Univ. of Tenn., 1892.	1889	1904
Shore, T. W., Boonville Univ. of Va., 1893.	1899	1904

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TRANSACTIONS

OF THE

North Carolina Health Officers' Association

FOURTH ANNUAL SESSION

Raleigh, N. C.,
Monday, June 15, 1914

OFFICERS

Dr. G. M. Cooper, *President*, Clinton.

Dr. Wm. M. Jones, *Vice-President*, Greensboro.

Dr. W. S. Rankin, *Secretary-Treasurer*, Raleigh.

Minutes North Carolina Health Officers' Association

Monday, June 15, 1914, 10:30 A. M.

Called to order by Dr. G. M. Cooper, President.

Address of Welcome: Clarence Poe, Raleigh.

Response to Address of Welcome: Dr. Cooper.

President's Address: Dr. Cooper.

Report of Secretary-Treasurer: Dr. W. S. Rankin, Secretary.

Address by Governor Locke Craig: State Responsibility for Human Life.

Vote of thanks to Governor Craig.

Appointment of Committees:

Nominating Committee—Drs. B. W. Page, L. N. Glenn, L. B. McBrayer.

Committee on Resolutions—Drs. J. Howell Way, J. R. Parker, Chas. T. Nesbitt.

Auditing Committee—Drs. D. E. Sevier, E. F. Strickland, Arch Cheatham.

Committee to Consider the President's Address—Drs. J. Howell Way, Chas. T. Nesbitt, J. R. Parker.

Paper by Dr. L. B. McBrayer: "The State's Tuberculosis Policy."

Address by Mr. John E. Ray, President of the State School for the Blind.

Monday Afternoon.

Dr. Cooper in the Chair.

Papers read and discussed:

The Medical Inspector's Relation to Mentally Defective Children—Dr. H. W. Chase.

Sanitary Instruction of School Children—Dr. B. W. Page.

How to Get Defective School Children Treated—Dr. D. E. Sevier.

Score Card System for Surveys of Schools—Dr. B. E. Washburn.

Fundamental Principles in Rural Quarantine—Dr. Arch Cheatham.

Monday Evening.

The President, Dr. Cooper, in the Chair.

Papers read and discussed:

The Place of the County Physician in Health Work—Dr. L. N. Glenn.

Program for the Summer Months for the Whole-time Health Officer.—Dr. William M. Jones.

Adoption of resolutions.

Reports of Committees.

Vote of thanks to the retiring President.

Adjournment.

Fifth annual session will be held in Greensboro, third Monday in June, 1915.

OFFICERS.

DR. WM. M. JONES, *President*, Greensboro.

DR. D. E. SEVIER, *Vice-President*, Asheville.

DR. W. S. RANKIN, *Secretary-Treasurer*, Raleigh.

TRANSACTIONS

OF THE

North Carolina Health Officers' Association

FOURTH ANNUAL SESSION

ADDRESS OF WELCOME.

MR. CLARENCE POE.

That welcome is most genuine about which least needs to be said. So my only purpose this morning is just to tell you how glad your capital city is to have this progressive body of men here.

The fact is, we are always glad to see the doctors. If we are sick, Mr. Roosevelt's most emphatic "Dee-lighted" is not enough to express our pleasure, and when we are well we welcome them as about our most delightful citizens.

I really count it a great honor to have the privilege of welcoming you here. There is nothing North Carolina has accomplished in recent years that I am prouder of than her leadership in the Whole-Time County Health Officer movement. I am proud to see on the Confederate monument out there mention of things our forefathers did years ago. "First at Bethel, Farthest to the Front at Gettsburg" and so on; but it is a great deal more important for some of us sons to make records; and "First in County Health Officer work and Farthest to the Front in Hookworm Eradication" looks good to me. I hope this County Health Officer movement will have the same rapid success the Hookworm Extermination work has had. I can scarcely believe that it is less than six years since Dr. Stiles over there came to the A. & M. College with the Country Life Commission and I had to undergo a fusillade of abuse for defending Dr. Stiles and his Hookworm theory. Now I am told that ninety-eight counties have had the Hookworm campaign, that it is going on in the ninety-ninth, and ready to begin in the one hundredth.

I congratulate you on what you are doing. I almost envy you sometimes your ability to read the effects of your achievements in ruddier faces and brighter eyes and lighter steps. I congratulate you on being in this movement; I congratulate you, most of all, in being participants in a yet larger movement. A movement greater than the United States,

the movement for the conquest of one of the greatest foes in human history—enforced human suffering and death itself, because of the poverty of the victim. Your health officer work is one of the emblems of this work that civilization is going to do—to make an end of this condition that has so long existed. We have come to realize in North Carolina "the right of every child born to burgeon out all there is within him" so far as his mind is concerned, and we must realize the equal right of every child born on earth in the battle again disease and death. The time will come when we shall look back on this as a barbarous age, when the wealthy have hospitals and surgeons and sanatoriums and the poor have to suffer and die for lack of these things. This is a world-wide movement, and what is being done in England today through sickness insurance and old age insurance is only an indication of what we must have here. This whole-time health officer movement is a most promising beginning, and I think we are to be congratulated that North Carolina has the leadership in this respect.

For all, therefore, that you are, gentlemen, and for all that larger hope you represent, I bid you welcome and thrice welcome to your capital city and all that is hers.

RESPONSE TO ADDRESS OF WELCOME.

Dr. G. M. Cooper, Clinton.

As Dr. Rankin has placed no one on the program to respond to this address of welcome, I take the liberty of saying this, that there is no man in the State of North Carolina whose words of commendation and praise are worth more than those of Mr. Poe's, and we thank him for his kind words.

I wish to extend the privileges of the floor to Dr. Charles W. Stiles, Dr. Elmendorf, and Dr. Trueler, of the United States Public Health Service, all of whom are here to attend this meeting.

PUBLIC HEALTH WORK IN NORTH CAROLINA.

G. M. Cooper, M.D., Clinton, N. C.

In the selection of a subject, as you may note, I have given myself wide latitude. I have not undertaken to produce a literary materpiece. But I wish to discuss, in a candid and simple manner, some of the very important public health problems now paramount in our State.

A few years ago the famous botanist, Dr. Asa Gray, was in Asheville and, in company with Dr. Westray Battle and other friends, drove up

one of the mountain peaks near the city. When the carriage was half way to the top, Dr. Gray had the driver stop, and he got out and made the statement there by that mountain roadside that there were more different varieties of floral life from that point to the top of Sunset Mountain than could be found on the whole continent of Europe. He stated further that "Every shrub growing in earth's five zones" could be made at home in North Carolina. No state in the Union has a greater variety of soil. We have only begun to scratch the surface of our great resources in agriculture and manufacturing, and the possibilities are unlimited.

With all our wealth and opportunities for a great future we have our problems. With the possible exception of Mississippi we have a larger percentage of rural population—more than 80—than any other State. We are going to find, when we get our vital statistics registrars to reporting accurately all deaths, that our rural death rate from preventable diseases—preventable, mind you—is going to be very high. This is due to many things, but chiefly to indifference and carelessness. You can change the politics and religion of a family much easier than you can bring about a change in their habits and customs of living.

As mentioned above, with more than eighty per cent of our entire population a rural one, the greater part of our public health policy must deal with questions of a rural nature. Sanitarians all over the world have demonstrated beyond a doubt that it is much easier to deal with the preventable disease question of cities or urban communities than it is in the country. Again, we have another element of trouble for the public health worker in our large negro population; the great bulk of whom have absolutely no comprehension whatever of the meaning of hygiene and sanitation. Their standard of living is low, their surroundings nearly always bad, and consequently they are a constant source of anxiety to the health officer. We have to deal with vice and superstition among the negroes; poverty, ignorance and indifference in a great portion of the tenant white class; and carelessness and selfishness on the part of many well-to-do people. So we see that for some time to come our work must continue to be of more importance from an educational standpoint than any other. The place to deliver our most telling blows is in the schools. We must instil into the very bone and marrow of the next generation the importance of a radical change in the living conditions of people who would profit by the findings of science, instead of following the blind paths of precedence. In other words, they must get the idea inbred that because their fathers died

from typhoid fever is no excuse why people should keep on dying from the disease.

The city health officer has more intelligent, or, if not more intelligent, at least more sympathetic coöperation, in the help of the mayor and the police force, and what is of more importance, more money to carry on the work. People in the country are in greater need of sanitary improvements in living conditions, but the task of accomplishment is seemingly almost impossible, and yet it is work that must be done.

In health matters, as in everything else, it is customary to help that community most which is making greatest progress in helping itself —"To him that hath shall be given." However just and expedient such a policy may be, it works a hardship on a community which is too ignorant or too poor to help itself, and that a large portion of our population live in rural sections which are backward and inaccessible is a fact no one can deny.

On the other hand, with our makeshift compulsory school law, with the elevation of teaching standards, with better school houses, and with the beginning of medical inspection of school children already instituted and bringing results in several counties, with its attendant discussions of hygiene and sanitation, success will come, gradually, but surely.

The amount of work that has already been done is an achievement in itself.

To my mind there have been three great agencies responsible for our rating in public health work in North Carolina.

First.—The truly great work done by Dr. W. S. Rankin, especially during the first three years of his work as secretary of the State Board of Health. His work in awakening the people of North Carolina through the State Health Bulletin and otherwise can never be overestimated.

Second.—The splendid campaigns planned and executed by Dr. John A. Ferrell and Dr. C. W. Stiles and their efficient corps of workers has carried an untold influence for good into the remotest regions of the State. Too much credit cannot be given these men for their great work.

Third.—I feel sure that I voice the sentiment of every active physician and health officer in North Carolina when I say that the third great help to us all has been the efficient, capable work of Dr. C. A. Shore and the State Laboratory of Hygiene. Personally I cannot say enough in commendation of Dr. Shore's unfailing courtesy and his generous desire to help us over our hard places.

On behalf of my brother county and municipal health officers I must say that there have been among them many hard and efficient workers.

And again, less distinctive, but no less important, in bringing about the changed conditions of health work, has been the almost universal assistance given us by the newspapers of the State.

We have seen during this past year many great advances—to enumerate in part: The whole-time county health work has been established on a firm and lasting basis. Its worth and importance have been demonstrated in enough representative counties of the State to be now an accepted fact.

We have seen the vast machinery of the vital statistics law swing into action, and I do not need to dwell on its importance. With the Bureau of Vital Statistics established and a responsible chief at its head, we will soon have the pleasure of seeing our entire State credited to the national registration area. The Bureau of County Health has been established and that work is of vast importance to the entire State. The Bureau of Education has continued valuable publicity work. When the reorganization of the State Sanatorium for Tuberculosis has been fully accomplished it means great things to all North Carolina. The beginning of free distribution of prophylactic typhoid vaccine by the State Laboratory of Hygiene in January of this year is one of the most important events in the State's history. The establishment at Salemburg, Sampson County, of the first official effort at community life, by which North Carolina leads the South, marks an epoch in community health work which is destined to revolutionize the work of rural sanitation. I could go on indefinitely, but enough has been said.

Now let us consider something of our needs. Greater opportunities mean greater responsibilities.

If North Carolina, in common with the other States of the South, is to build up and maintain a strong rural life, sweeping changes must take place. More attention must be paid to community effort and less importance attached to individual methods of doing things. One of the things which I have my heart set on for one community in my home county of Sampson, and which can be made applicable to every community in the State that desires to adopt it, is to ask the Legislature to give us legal permission to organize one community. For convenience, we have adopted the school district as already established. We want to organize with a Board of Councilors, having a president and other necessary officers, corresponding to the mayor and commissioners of the small towns. We want legal authority to do police duty, dispose of petty offenses just as the mayors do, authority to demand sanitary conditions of every citizen residing in the community. In other words, we want to make an effort to give the people of the rural

communities, who need it worse than any class of people on earth, the opportunity to protect themselves, from the standpoint of health, morals, education and finances, and to develop their resources.

There has been recently established at the University of North Carolina the chair of Applied Economics and Rural Sociology. Well and good. But now let's go on to an actual necessity and establish the chair of Applied Hygiene and Rural Sanitation. Why not? If there is any one thing our rural population need worse than anything else it is rural sanitation. Establish that chair at Chapel Hill, go out into the field and get a man to fill it who knows the great need of the country people along these lines, and in a short while you will begin to see definite results. We are already in need of trained health officers, and the need will soon rapidly increase, and a man trained at our own State University will understand our people and be able to meet our own local conditions a thousand times better than one trained at the new Harvard School for Health Officers.

I understand that a start has already been made toward the establishment at Richmond, Virginia, of a department in the medical school there to teach public health. But the fact that they have gone to Harvard or Cornell for a teacher makes me feel like weeping. You can sooner teach a Pole or Hun from the Colorado coal mines how to cultivate cotton in Robeson County than you can impress on the mind of a Harvard health officer that health problems in the rural South are essentially different from those in Boston.

The State of Texas already has its department of Preventive Medicine at the State University. We must not lag.

Doctor Rosenau says that "Progress in every branch of preventive medicine depends most upon the efforts of physicians," and every man here knows that to be a fact. Therefore, one of our foremost needs is to get the great body of physicians in North Carolina to support us and help us out in this work, if we would achieve permanent success. And approached in the right manner not a physician in the State but will give freely and cheerfully of his time and influence to aid in public health advancement.

We want to see that when the Legislature meets again the appropriation for the State Laboratory of Hygiene is sufficient to enable Dr. Shore to produce the Pasteur serum, vaccine virus, and diphtheria antitoxin, as well as prophylactic typhoid vaccine for the use of every physician and health officer in the State, free for all the people, rich and poor.

We need a closer relationship between the State Board of Health and its officers and the various county health interests. It is a deli-

cate matter and full of dangerous possibilities to all concerned for the State health officers to undertake to even offer suggestions as to the selection of county health officers and county physicians. And, on the other hand, the State Board of Health is in position, or should be, to know who comes nearer to performing standard service in health work, as compared with State and National requirements. The State Board of Health should stand ready at all times to act in an advisory and helpful capacity. The men who are working as county health officers are doing pioneer work, and there are many difficult problems to be met and solved. Motives are questioned. License is still mistaken for liberty by numbers of people, complaint at increase of taxes is heard, the death rate from preventable diseases is still regarded in many quarters as the dispensation of Providence. And in the solution of all the thousand problems, the State Board of Health should be ever ready with assistance and guidance, ever bearing in mind that it is for the welfare of the whole people.

Together we should evolve a plan of work based on a permanent system by which the great work of county health may go forward without friction. Such a plan can and will be found at this meeting which will eliminate all causes for jealousies or unfriendly competition, and which will enable every man engaged in county or municipal health work in the State to feel free to consult with the chief of the department at any and all times.

Gentlemen, we are engaged in the greatest work of modern times, the amelioration of suffering and the conservation of human life. Our work is in the quiet places, the laboratory, the schoolroom, with disease charts and the cause and prevention of disease. When we do have to go out on the firing line it is often in the performance of unpleasant tasks, and consequently we are the target for many shafts, some of them poisoned. Our material reward is barely sufficient for the necessaries of life. When we give the best of service, it is often years before the very people most benefited realize what has been done for them. But when I think of the hundreds of thousands of children in North Carolina constituting our most important asset, and of what may be accomplished by the application of the broad principles of medical inspection of all school children, improved teaching methods, longer school terms, absolutely no night work for children under sixteen years of age, and modern sanitary environment in the home and school; when I think of the possibilities of such a future citizenship, I am willing to give my own part, my life, for such a cause.

Dr. J. Howell Way, Waynesville: I have been waiting for some member of this association to express himself and for us all our gratitude and our cordial appreciation for the most admirable, carefully studied, well read and ideal address of the President, to which we have just listened. It contains some things which I do not think we ought to pass over, and I move that the thanks of this association be tendered our president for his address; that it be given wide publicity, as it should and will exert a happy influence on public sentiment in North Carolina, through the press of the State; and further suggest that a committee be appointed to consider some of these suggestions and recommendations and report to this meeting, if deemed advisable.

REPORT OF THE SECRETARY-TREASURER OF THE NORTH CAROLINA HEALTH OFFICERS' ASSOCIATION.

Mr. President and Members of the Association:

The duties of the Secretary's office are not very onerous, and this report will occupy but a few minutes of your time.

The minutes of the last meeting can be dispensed with, as the full proceedings of our last meeting are contained in the Transactions of the North Carolina Medical Society. The North Carolina Health Officers' Association appreciates the kindness of the State Medical Society in publishing their proceedings as a part of the transactions of the State Society.

With your President, Dr. Cooper, I have arranged the program for this meeting, which we hope will prove both helpful and entertaining. The president and secretary of the Association have endeavored, through correspondence with health officers, county physicians, and county boards of commissioners, to secure a large attendance at this meeting of the Association.

The press service of the State Board of Health has also lent its aid in calling public attention to the importance of this meeting.

As Treasurer, I beg to report as follows:

Collections by correspondence prior to the Charlotte meeting and at the Charlotte meeting	$34.00
Collections at the Hendersonville meeting	29.00
Total collections	$63.00

DISBURSEMENTS.

July, 1913.	To Lewis Mahler Sons Co., for cane for Dr. R. H. Lewis	$18.00
Nov., 1913.	To E. M. Uzzell & Co., for stationery	12.50
May, 1914.	To E. M. Uzzell & Co., for stationery	6.50
	Total disbursements	$37.00
	Balance on hand	$26.00

Respectfully submitted,

W. S. RANKIN,
Secretary-Treasurer.

STATE RESPONSIBILITY FOR HUMAN LIFE.

GOVERNOR LOCKE CRAIG.

I have no address to make. I came up here at the invitation of Dr. Rankin and some others to pay my respects to this meeting, and to give you what encouragement I can, but you all know so much more about this subject than I could know by any amount of study that I feel that I cannot help you at all. I do not think there is a more important body of men or a more important meeting held in the State than this meeting. As I understand it this is a meeting of the health officers of North Carolina, and the State recently has advanced more, so far as its functions as a State go, in the preservation of public health than in almost any department of government. We almost altogether neglected that a few years ago, and it is only of recent years that we have become interested in it. We have necessarily become interested in it because our very development as a people makes it necessary. Take a sparsely settled community and there is no need for health legislation or health regulations. The people of a village can drink water from the village well or from any well with comparative safety. After that village develops into a city and the whole ground becomes more or less contaminated with the poisons which are necessarily incident to city life, then it becomes necessary to establish regulations as to the water that people shall drink. When the people of Israel, as you remember, were in Egypt making bricks under the Egyptian government, there might not have been any care for their sanitary conditions, and doubtless there had not been the same necessity, but after they were in camp and had crossed the Red Sea, Moses, the greatest law giver of all times, thought it was necessary for the health of the people that he establish health regula-

tions, and he did establish the most stringent health regulations. It is necessary in our development that we have these regulations, and they may be considered by people more arbitrary as civilization grows.

I remember when I was city attorney in Asheville it was decided that the wells were polluted, and that they would have to be closed up. We did not have as good a water supply then as that city has now, but we had a better water supply than some cities I know of. We passed an ordinance that all surface wells must be closed. Of course, it met with a great deal of opposition, but finally it was established, and after the improvement and development of the water system, instead of having 300 cases of typhoid, as we had one summer in Asheville, that disease is almost unknown now.

I think there is no body of men in this State that, if they perform their duty, would count more in the welfare and upbuilding and happiness of the State than these health officers.

All modern improvements are interlocking and must go hand in hand. Good roads are a fine thing, and telephones and telegraphs and mail boxes and railroads. All these thing are necessary for the intelligent advancement of the people. But the home, after all, is the thing, and if you have a people that have good homes and sanitary homes, that is going to be the finest people, and everything else will follow. If you will do this, if you will establish healthful, clean, sanitary homes in North Carolina, all these things will be added to us. It is impossible for any man to do any kind of work unless he is healthy and strong. You gentlemen have more to do with that than any other class of people. That is your duty, to go to the homes, as I understand it, and see that the homes are in better condition than they have been heretofore.

I have said on a former occasion, and I say again, that the most useful improvement in modern times is running water in the house. The Scripture says that cleanliness is next to godliness, and it means that it is almost impossible for a man to be a godly man unless he is a clean man. Cleanliness is a little ahead of godliness.

I think, though I have not investigated the question very thoroughly, that we are far behind some of the advanced nations of the world in cleanliness and in sanitary conditions. I know we are far behind the ancient Romans in that. There were streams of pure mountain water flowing there; there were great waterworks. Everybody in ancient Rome was taught to bathe. There were magnificent marble baths for all the people. All the people were clean, bathing, sanitary people. And they were the people that conquered the world; they were the people that did not feel the languor of malaria and typhoid fever; they were

the people that sent their legions to the ends of the world and made laws for all the civilized world.

I say I believe that running water in the house is more important than any other modern improvement. First of all, it saves so much labor. Our country women grow old more quickly than the men because the burden of the home falls upon them. They have to carry water from the well or the spring, just barely enough water. And when it is necessary for a man to draw water or carry water and heat it, in order to have a bath, he is not going to be so clean a man as one who can just turn a spigot and have plenty of fresh water. Running water in the house saves labor and saves time. It is a wonder we have not had it in every home long ago. The human race is mighty slow to learn anything. People are very slow to take up the instrumentalities of modern progress. The simplest of all, the one that would conduce more to health and happiness than any other of modern civilization, the one that would make the home cleaner and more attractive, and more worthy of being the home of human beings, is to have plenty of running water in the house. It is for you gentlemen to be the apostles of running water in the homes of North Carolina; it is for you to go to that home and show them how a few dollars for the iron pipe would carry the water from the spring or the well to the house. People are getting accustomed to it, and they will not do without it much longer. You gentlemen can hasten its coming more than any one else. You can do more towards conquering the most deadly enemy that we have than all the armies and navies of the United States. That enemy is the house fly. Why, the house fly kills more people than would be killed in a war with Mexico. I expect it kills more people than were killed in the Civil War. Does it cost much to get rid of this pest? Why, it does not cost much, just the price of a few feet of wire. Suppose, my friends, that the cheap homes, not the handsome homes, but the cheap homes, were equipped with running water, plenty of pure, clear water, and with screens, I tell you ninety per cent of the people in North Carolina would be a better people, a stronger people, a more moral people, and more desirable citizens.

When I was a boy I lived in Eastern North Carolina. I had a chill regularly every other day; it was a regular routine business. That was the condition of most of the people in Eastern North Carolina. But the people have learned something now. They have learned to bore deep wells and to keep the mosquitoes away and the house flies away, and they are now some of the healthiest people in the world.

Look at the Panama Canal. The French Government could not build it; with all the money they had they could not get people to go there.

It remained for this government to make sanitary conditions there so good that people could live there. All North Carolina has a fine climate. Here in the Temperate Zone we have one of the finest climates on earth; we have fine soil, all kinds of soil, hills and piedmont and mountains. North Carolina is one of the most desirable spots on earth. But they tell me that North Carolina, with its salubrious climate, its fine soils, its mountain breezes, they tell me that North Carolina is one of the most unhealthful states of the Union, as shown by its vital statistics, compared with those of other states that have vital statistics. It seems to me that with proper health conditions, land in North Carolina would double in value. Every acre of land that will produce a bale of cotton to the acre is worth $200 an acre and more. Every acre that will produce two bales is worth $500, and we have such land all through this section down here. It will produce peanuts. This hill country will produce wheat as fine as any in the world. We have an agricultural country, and I hope we always will have an agricultural country. I hope our people always will live in the country. I hope this State will never become a city State, where most of the people live in cities and around cotton mills, desirable as such industries are. Most of our people live in the country, and will live in the country and will grow up there with the horses and the mules and the cattle and the corn and the grass and the trees. They will grow up there healthy and strong, surrounded by desirable health conditions, or they will grow up in languor and disease. It is more with you gentlemen to decide which of these conditions they will have than with anyone else. This is in your keeping. The value of the land is only an incident of it, a pretty big incident, it is true, because when you multiply the value of a man's land you multiply his value. When you carry conveniences to the man you make him a better man, his wife a finer looking and better woman, and you put a fairer bloom on his daughter's cheek. When you make the country more valuable you give him opportunities. Ninety-nine men out of one hundred will take advantage of their opportunities. In our day, in our time, with the magnificent resources, with the unlimited capacities of the men of this age, we need to add the alchemy that can transform material progress and material forces into moral and intellectual forces. The most essential thing is the health and happiness of the home. If you give men the opportunity, if you give men the capacity to educate themselves and with which to educate and lift up their families, ninety-nine men out of one hundred will take advantage of it. Good roads, railroads, telephones, in increasing the value of the land, give him an opportunity to do better in the world and to be better. One of the highest things in the world, the highest thing in the world

next to the serving God and keeping His commandments, is to have a pure, healthy, clean home, with clean, healthy men and women. That is worth more than gold, worth more than silver. Silver and gold are worth much only because they can bring these things to our people. The people that are healthy and strong are the people that will demand and have a good government. There was never a strong, robust race, though you search all the history of the earth, that was not strong in intellectuality and strong in morality and strong for liberty and strong for justice and strong for good government. That is why North Carolinians have been what they have been. They have been a strong race, but conditions are now developing in which we must abandon old methods and the old neglects and take hold of these new conditions with means that are adapted to new conditions. The old ways do not fit the city, and the old ways do not fit thickly settled communities. Typhoid and malaria germs must be banished. This organization can drive them out, and must do it. The State must do this thing. No individual can do it. I can not protect health conditions by myself, but the community can do it, and it is one of the highest obligations of the community to do it, and the communities of the State are developing that high responsibility. You health officers have the keeping of the destiny of the State in your charge, you have the welfare of the children in your charge. If you measure up to your responsibility, North Carolina will take a step forward.

I have noticed in the last few days in the *Health Bulletin* of the State Board of Health, on the first page, a statement of the condition of affairs in one town in North Carolina. Now, I know that the Health Board has no malice toward any town. I know it has no intention but to do justice, and I was glad to see this article, because the greatest preventive of wrong in the world is to make that wrong public and let all the people know it. If there is a town in North Carolina that is not living up to its municipal obligations, the obligation to its people and to all the citizens of the world that it invites to its borders to make money out of, or for social enjoyment, then the conditions in that town should be exposed. If the water conditions in Raleigh, in this capital city, where everybody must come, if the water is not what it should be in this capital city, then the newspapers perform a sacred service to the people of North Carolina in publishing the facts. If this health organization have the courage to do that, not only for one city, but for every community in North Carolina, then things will begin to clean up. Then it will be understood that if a town neglects her sanitary conditions and lets pestilence stalk abroad and lets poisonous insects carry filth to the food of the children who are born there or who go there,

it will be understood that such a town will be exposed. It is not worth while to wait further, until another epidemic breaks out, to call attention to the very facts which created the epidemic a few months or a year ago. We should not wait until we hear the lamentations of mothers over the little coffins before you call attention to the causes that created those conditions.

Now, gentlemen, as I say, I congratulate the State of North Carolina because it is taking this step forward. There ought to be in every county in North Carolina some man in charge to look at conditions and observe conditions and be responsible for them. If he can not hold the job, get some one who can. We don't want excuses; we want results, and results we are going to have. North Carolina, instead of being one of the most unhealthful states, should be one of the most healthful places in the world. More than all, our people could live here in strength and beauty and increasing prosperity and happiness.

I thank you, Mr. Chairman and gentlemen, for the compliment you have done me by asking me to come and pay my respects to this body. I wish I could say something that would be of more service to you. I want your every meeting to be a milestone from which you shall start on a new journey to finer conditions in North Carolina which shall be a blessing to all the people of the State.

Dr. J. Howell Way, Waynesville: We have had in North Carolina governors who their friends and adherents and even the records of the times said stood for some special feature. It is a matter of gratification that we have as the present occupant of the governor's chair a man who stands for the best in everything, a man who will go down in the history of North Carolina as a great governor, a good governor who loved his fellow men, a man who accomplished much on many and varied lines. As one actively interested in the health work of North Carolina, I want to say that on no occasion has Governor Craig failed in a single instance to stand actively and forcefully in every movement for better health conditions in North Carolina. I move that we express by a rising vote our thanks to the Governor for his address today.

This motion was seconded by Dr. L. B. McBrayer, and unanimously carried.

The motion of Dr. Way, to appoint a committee to consider and act upon the President's address, was seconded by Dr. L. B. McBrayer and carried, and the following committee was named: Dr. J. Howell Way, Dr. Chas. T. Nesbitt, Dr. J. R. Parker.

The following committees were appointed:

Nominating Committee—Dr. B. W. Page, Dr. L. N. Glenn, Dr. L. B. McBrayer.

Resolutions Committee—Dr. J. Howell Way, Dr. J. R. Parker, Dr. Chas. T. Nesbitt.

Auditing Committee—Dr. D. E. Sevier, Dr. E. F. Strickland, Dr. Arch Cheatham.

THE POLICY OF THE BUREAU OF TUBERCULOSIS OF THE STATE BOARD OF HEALTH AND THE STATE TUBERCULOSIS SANATORIUM.

L. B. McBrayer, M.D.

A person who has been in charge for only two months of as important a work as this would hardly be expected to formulate a policy without stating, as do certain business houses in regard to the price of their products, that the policy is subject to change without notice. However, we have been able to work out certain general policies that it is a great pleasure to give to the profession of the State and, more particularly, to the health officers of North Carolina, and to all other people who are interested in this particular phase of public health work. We say "to all other people," and that phrase ought to cover the entire population of our State, because few there be whose lives are not touched at some point or other by the dread malady of tuberculosis.

The first thing that was to be done, and that must be continued and improved upon, was the placing of the State Sanatorium on a basis, as regards the conduct of the same physically, medically and hygienically, that will accord with the views of and commend it to the thinking peoplel of North Carolina, the business people, the doctors and the social workers. That we have progressed fairly well in the two months I believe none will deny. However, this is but an earnest of what we hope to do in the future.

It has always seemed to us that when the State does anything, in any line, she ought to do it in as nearly a perfect way as is possible, so that it will be an object lesson for good to all the citizens of North Carolina, and elsewhere, for that matter, who may be brought in contact with it. For example, if a State institution is going to conduct a dairy, it would seem that the said dairy ought to be conducted along the latest scientific lines of dairying. If the State is going to conduct, in connection with one of her institutions, fruit growing, it would seem that instead of the Horticultural Department working on an adjoining farm as a demonstration, the State's own property should be used, and used as a demonstration in fruit growing. If it is desired to make experiments in fruit growing, or in hereditary transmissions in fruit growng, why not conduct those experiments at some of the State institutions? In fact, it would seem that every State institution, and especially the State Tuber-

culosis Sanatorium, should be an institution for original research. Why not? At any rate, it is hoped, as the days go by, that the State Tuberculosis Sanatorium will become a model in every line of its activity. It is hoped that the sanatorium, *per se,* shall do its work according to the latest approved methods. It is hoped that in everything we do we shall be able to do it in such a manner that it will be a model to which anyone who may desire may go for study or observation. It goes without saying that at such a place the patients would receive the best possible attention and care from every standpoint.

We are now able to offer to the physicians and to the people of the State expert diagnosis in doubtful cases of tuberculosis. Our plan is to have the patient come to the Sanatorium and stay until we have exhausted, if necessary, every scientific measure known to the medical profession in the diagnosis of each particulalr case. It is necessary sometimes to keep the patient for some ten days in order to carry him through all the various tests. We have two patients now that we are just finishing. If they are found to have tuberculosis, they will probably be kept there several weeks, if they desire to stay until we have taught them thoroughly the hygienic measures necessary for them to employ in order to procure a cure in themselves and to prevent the transmission of the disease to others.

We have established, in connection with the Sanatorium, a training school for nurses. We have at this time four nurses in the training school. We plan to do four things: (1) Give a post-graduate course of a few months to graduate nurses, at the close of which, if the work has been satisfactorily done and the studies satisfactorily pursued, they will be given certificates in tuberculosis nursing; (2) Connect with other general hospitals in the State and give their nurses a three to six months' course in tuberculosis nursing, giving, at the time they receive their diplomas from the general hospital, to such as have satisfactorily completed this course, a certificate in tuberculosis nursing; (3) Conduct a regular training school for nurses, giving them one year of work in some of the general hospitals of the State, and at the completion of the course giving them diplomas as graduate nurses; (4) Conduct a training school for visiting nurses, and at the close of the course give a diploma or special certificate in visiting nursing. There is a wide opportunity, as well as a wide field for usefulness, for the visiting nurse today. There is also a demand for visiting nurses very far in excess of the supply. I am informed by Dr. Jacobs, Secretary of the National Association for the Study and Prevention of Tuberculosis, that it is impossible to procure visiting nurses sufficient to meet the demand. The field for usefulness in this line of nursing is perhaps much greater than in any other line of work that a nurse can do.

It is hoped, as soon as facilities and clerical assistance can be had, to keep in touch by correspondence with patients who leave the Sanatorium, see that they can obtain sputum cups, pocket flasks and other supplies that are so necessary in the prevention of the spread of tuberculosis, in order that they may carry out the hygienic measures that are taught them at the Sanatorium and not relapse into their former careless methods as regards themselves and others. It is a sad commentary on the State of North Carolina that in a very small number of counties, comparatively, can sputum cups and pocket flasks be procured for either love or money.

As soon as sufficient funds and clerical assistance can be had, it is hoped that we may enter energetically upon the enforcement of the law requiring cases of tuberculosis to be reported to the State Board of Health. It has been our experience that doctors do not care to go to the trouble and expense to report cases of contagious or infectious disease unless some good is accomplished thereby. We hope to make it worth while not only to the physicians, but also to the people who have tuberculosis and to the people who do not have tuberculosis, to report these cases. We mean by this that we hope to be of sufficient service to the profession and to the people to make it amply worth while to both of these classes of our citizens to report these cases. This will require some money, as well as a large amount of work. We are willing to do the work, and we hope that when the next legislature meets they will give us the money.

It is hoped in the very near future to offer our services to any community or city or institution to make a complete survey of the city, community, etc., and give them accurate information as to the prevalence of tuberculosis. Such a survey would comprise a systematic study of every human being in the said community. We have not the time now to give you the details of such a survey, but the idea is that when such surveys shall have been completed we shall be able to advise the city or community as to the exact number of cases of tuberculosis in the said community, giving their names and addresses. We shall be able to advise them of a second class of people that are below par and that must needs conduct themselves so as to husband their vitality and not expose themselves in any way to tubercular infection lest they come down with the disease. A third class, those that are robust and strong, can, if they desire, go on wasting their vitality and defying the laws of nature with comparatively—comparatively, mind you—little danger of being overtaken by the disease. After this information is in hand, we hope to offer to the community the kindly offices of the State Sanatorium and of the Bureau of Tuberculosis, to the end that the infective

cases may be removed from the community, and that the remaining people whose vitality is found to be below par may be kept under observation, to the end that tuberculosis may be stamped out of this community. Of course, it would be necessary then, a few years later, to conduct again this same careful survey in this community, in order that we might record the results of our work. It is hoped that before this Association shall meet again in annual session we shall have put into operation these ideas in at least one community, and that we shall be able to report to you the work accomplished, in so far as it goes. Then, if we can stamp tuberculosis out of one community, we can stamp it out of a second community, and a third, and so on, until it is driven from our grand old State.

There is much more that could be said, but we trust that this is sufficient to give you a general idea as to the policies of the State Board of Health in regard to the State Sanatorium and in regard to the tuberculosis campaign in North Carolina, the details of which will be worked out from time to time to suit the individual case and the individual problem. If this policy commends itself to the profession of North Carolina and to the thinking people of North Carolina, we have no fear that the legislature will provide us with sufficient funds to carry out these policies, and thereby protect our people from the greatest scourge that the people of North Carolina have ever had.

Mr. John E. Ray: I come before you not to give information, but to ask help. I am a layman, not a physician, not an expert so far as medical knowledge is concerned, but through observation I have learned some things about a good many of the problems that concern us as citizens of our commonwealth. One of the two words that have been emphasized perhaps more than any other two words within my recent knowledge is *prevention*. It is a great deal easier to prevent tuberculosis than to cure it. I need not tell you gentlemen that. It is a great deal easier to prevent blindness than to cure it. So it is my purpose to come before you health officers this morning and to ask your assistance in preventing blindness in our State. The great steel corporations spend half a million dollars every year in devices for preventing accidents to the eyes of the machinists employed in their plants. That shows to what extent they regard prevention.

There are approximately 100,000 blind people in America, big and little, old and young. There are 1,700 and more in North Carolina. Of these 1,700 or 1,800 blind persons in North Carolina, at least 400 are blind who never should have been blind, had proper preventive measures been adopted at birth. I am not here to tell you how these preventive measures should be applied, but I am here to tell you that blindness

in babies can be prevented, and devices and plans have been so perfected that for ten cents an ampule can be secured from any first-class druggist which will contain enough antiseptic to prevent blindness in 22 babies in North Carolina during each year. This ampule is stamped with a date which states how long this preventive is supposed to last. If that period expires before it is used, it can be returned to the manufacturers. This preventive, of course you know, is silver nitrate. For the last four years efforts have been made to get our General Assembly to pass a law such as has been adopted in New York, Indiana, Pennsylvania and almost throughout Europe, looking towards the prevention of ophthalmia neonatorum. If such a law can be passed and put into operation in our State, which will cause the physician or midwife or any other person present at the birth of a child, to administer this prophylactic within twenty-four hours after the child comes into the world, then there will be blindness prevented which those of us who do not stop to think about it have no conception of. My purpose in coming before you is not to detain you, but simply to ask you to assist your humble servant in getting through the next General Assembly an act for the prevention of blindness. North Carolina has done a good part in educating and preparing for citizenship blind men and women. My purpose is to ask you to help me in every way possible to spread this information throughout the State and then to get through the approaching legislature some measure by which we can get some such information as this,—the report of the birth of every child within less than 24 hours after its birth, and the question, Did you apply the prophylactic? If not, why not? That has wrought wonders in the states where it has been put into operation, and I believe it would work wonders and prevent a great deal of blindness in North Carolina.

THE MEDICAL INSPECTOR'S RELATION TO MENTALLY DEFECTIVE CHILDREN.

W. H. Chase, University of North Carolina.

We are hearing much in the last few years of coöperation between physician and psychologist in the field of mental disease. Psychiatrists like Prince, Meyer, Freud, Janet, are using psychological concepts more and more in their work. In the field of mental defect we have a splendid example of such coöperation. Seguin, a physician, was the first to develop a scheme of education for these unfortunates. I need not refer to the classical work of physicians like Ireland, Barr, Shuttleworth, Tredgold, on this subject.

The psychologist, too, has contributed much. It was Prof. Witmar,

a psychologist, who started at the University of Pennsylvania the first free clinic for the examination of defective children. Dr. Goddard, the psychologist of the Training School at Vineland, is perhaps the foremost authority in this field today. Men like the late E. B. Huey, at Lincoln and Baltimore, Wallin at Pittsburg, have contributed much. Clinics have been opened at several of our universities where physician and psychologist work together in this field.

I want, then, to sum up briefly what, as the psychologist sees it, is the relation of the medical inspector to mentally defective children. We are coming to see that physical and mental are very closely related, and I believe that just because of this relationship the problem must be attacked by both physician and psychologist.

First of all, the psychologist regards mental deficiency, not as a single sharply delimited unit, but as the result of the working together of many factors. The human mind is not the sum of a few faculties, like memory, reasoning power, judgment, observation, and the like. It is rather the product of the working together of hundreds and thousands of simple mental traits, of which the mind of the individual is made up, in somewhat the same way as his body is made up of thousands of physical traits, like the height and weight of the individual, color of his eyes and hair, shape of his nose, and so on. We do not possess, for example, a memory, but hundreds of kinds of memory; memory for faces, for names, for emotional experiences, for colors, for music, and so on. And some of these may be good and some bad. What we call the memory is merely a convenient fiction to embrace all these. In the same way, we do not possess a single power of reasoning, or of observation, but these are merely convenient terms to embrace a great many traits which work together. And the working together of all these traits is determined, of course, by the fundamental laws of the nervous system.

The individual mind is, then, the product of thousands of simple mental traits. These of course appear in different degrees of efficiency in different individuals. All human minds follow the same general pattern, just as all human bodies do, but differences between them are even greater than differences in physical structure and function. When, in the individual, some trait is absent or not normally developed, we may speak of the individual as defective in that trait. All of us are, to some extent, mentally defective. Some of us have, for example, no ear for music, others a poor head for figures, and so on. But because, after all, these are not traits which are of fundamental importance, we manage to get on very well. Now suppose that an individual has a number of extremely important mental traits lacking in him, or poorly developed, traits like the ability to give continuous attention to things, like the

ability to recognize and remember forms and shapes well enough to learn how to read and write, like the power of moral discrimination, the ability to pick to pieces a situation and see the important parts of it, and so on. In such a case we speak of the individual as mentally deficient. But the difference between him and the man with a poor ear for music is really after all one of amount, of degree and not of kind. The one is lacking in the development of a relatively unimportant trait; the other, in many traits which are socially important. The normal shades over into the abnormal. Our definitions of mental deficiency must be, then, after all, relative. The question at issue is always whether the individual possesses certain fundamental traits in sufficient amount to enable him to become socially efficient in the sort of social group in which he lives. An individual who is so lacking as to be subnormal in the twentieth century in a civilized community might well be normal in a primitive state of existence; that is, he might possess those traits to a sufficient degree to enable him to keep his head above water.

Now with the severer degrees of mental defect certain fundamental abilities are so conspicuously lacking that no question can arise as to the ability of the individual to survive socially; but it is just the lighter and more puzzling cases that get into the schools, and form the problem of the medical inspector. A suspected child may be lacking in certain abilities; is he defective or not? The decision must, I believe, always be rendered in social terms; that is, are these traits lacking to such a degree, and are they of such social importance, that the individual can never become socially efficient? I have found, and I suppose that most of you have, that teachers are often likely to confuse true mental deficiency with the lack of some school ability that may be important in the classroom, but perhaps after all will not prevent that individual from leading a normal life, though of course not on the highest intellectual plane. A poor environment will of course retard mental growth. I have even seen cases where a perfectly normal child was suspected of being subnormal by a city teacher because he has received his training in some little country school, and, when he moved to the city, was far behind children of the same age in scholastic ability. Nor need I remind a body of physicians how often physical defect, that has operated to retard growth, is confused by teachers and others with mental defect. It is needless to say that an examination for mental defect should always be accompanied by the most searching examination of the physical condition of the child. The question of the diagnosis of the higher degrees of mental defect is always a most puzzling one, and often must be settled only by repeated and long continued observation. For a first hand study of some thirty border-line cases let me refer to

"Backward and Feeble-Minded Children," by E. B. Huey, published by Warwick and York, Baltimore, 1912.

I have been trying to make the point that a diagnosis of the sort of case of mental defect that gets into the public school must always be the result of the consideration of a great many factors and that the social point of view will be a helpful one in forming decisions, since the kind of mental traits which are not developed must always be taken into account. Do not understand me as tending to slight the physiological side of the matter. Mental defect is of course finally physical defect, correlated probably with arrested development of the cortical cells, and as everybody knows, it often has other physical expressions, in lack of motor control, for example. Mental and physical, as I have already said, cannot be considered as separate.

Another point which has become increasingly evident from the investigations of the last decade is the enormous importance of the factor or heredity. As evidence has accumulated, the number of cases of mental defect which can be attributed solely to such factors as irregularities at the time of conception, shock during pregnancy, injuries at birth, diseases of infancy, and so on, has been steadily reduced. Such cases of course exist, but often they are merely contributing factors, working on a soil already prepared. Tredgold, the English authority, estimated the number of cases due to hereditary factors as not far from eighty per cent of all. Mental traits, as we all recognize in a general way, are inherited like physical. But it has remained for workers like Goddard at Vineland and Davenport at Cold Spring Harbor to gather sufficient evidence to show the laws which are at work in the transmission of mental defects. I cannot enter here into this fascinating field. The book by C. B. Davenport, "Heredity in Relation to Eugenics," is the best summary of what has been found. (Published by Henry Holt and Co.) The bulletins of the Eugenics Record Office, Cold Spring Harbor, Long Island, New York, also contain much of value. Of studies of particular families, the recent book by H. H. Goddard, "The Kallikak Family" (Macmillan) is perhaps the best.

The study of human heredity has really just been begun, but enough has already been found to make evident the importance of supplementing the examination of the individual child by the most careful study of the family from which he comes, as well as by his own individual history, before a decision is reached. Certain families will often be found to serve as foci from which radiate long lines of defective descendants in every direction. At the bottom of it all, the trouble with the mental defective is that he comes from poor stock. The best way to deal with the defective child is to prevent his being born.

I pass now to another matter about which the psychologist has had

much to say in the last few years. This is the question of the measurement of intelligence. The condition which we call mental deficiency is so complex, and so shades over into normal conditions, that the task of diagnosis would be much simplified if it were possible to give to the individual simple tests of his mental ability so standardized as to afford a clear picture of the workings of his mind in various important directions.

It is easy enough to determine whether a child is below the normal for his age in height and weight; we have at our disposal measurements made on hundreds of children of different ages which serve as standards for comparison. Is it possible in the same way to measure the intelligence of the child? We do this roughly, of course, all the time, when we classify a child as bright, average, or dull. But when we attempt to measure the degree of intelligence shown by the individual in a more exact way, the problem becomes much more difficult. Much attention has been devoted in psychological laboratories to this problem, and certain conclusions stand out. First, there is no one single mental test that serves as a satisfactory measure of general intelligence. The mental functions are too complex to be satisfactorily measured by any one standard. Nor is it possible at present, and probably it never will be, to measure intelligence by any number of mental tests with the same exactness with which physical measurements are made.

But there are simple tests of mental ability which are extremely suggestive, and which should be of great value to the medical inspector. The best-known and most satisfactory of these are the Binet tests.

These are the result of a long series of investigations by the French psychologist, Binet, and have been widely used in this country, for the last few years, on thousands of school children in different parts of the country. There are two forms of these tests, one published in 1908, the other in 1911. The latter series may be obtained in translation from the Medical Book Co., Chicago, Ill., under the title "A Method of Measuring the Development of the Intelligence of Young Children, by A. Binet and Th. Simon." A revision of the scale may be also obtained from Dr. H. H. Goddard, Vineland, N. J., and from various other sources.

These tests consist of simple things that a child of a given age ought to be able to do, whether or not he has had the advantage of school training. In other words, they are tests of natural intelligence, rather than of school training. They are arranged by ages, five tests a year, from one year on through twelve years, and also for fifteen years and for adults.

A child of eight years, for example, should be able to do such things as state sensibly the difference between such materials as paper and

cloth, wood and glass. He ought to be able to count backward from twenty down to one, in twenty seconds, with not more than one error. He should be able without hesitation to name the days of the week, to count the values of six stamps, three of which are twos and three ones, in less than fifteen seconds. And he should be able to repeat five numerals given distinctly once by the voice, without mistake. Tests like these, as I have said, are arranged for the various ages. They require little apparatus, and that easily portable, and can be given to a child in from half to three-quarters of an hour. They are so simple, in fact, that one is inclined at first to underestimate their value. They must be given, of course, in a quiet room, to the child alone, and for any value to attach to the results, the directions must be exactly followed. I need not say to this audience that it is absurd to diagnose mental deficiency on the basis of these tests alone. But what they do give us, and that with a fair degree of exactness, is the mental age of the child, which of course may vary considerably from his age as determined by his birthday. And, if one finds that a sixteen-year-old child shows by these tests the mind of a child eight or nine years old, it is easy enough to see that mental defect is indicated. Just how much retarded the mental development must be in order to establish the presence of mental deficiency it is difficult to say. I am inclined to believe that no sharp line can be drawn, for several reasons. First, the sort of home from which the child comes has some influence in determining the rapidity of his mental development. Again, the scale is not perfect, the tests are not all of equal difficulty for any one year, and some are undoubtedly misplaced. There are children who show only a year or two retardation by the Binet scale who are undoubtedly defective, and others which show greater retardation who are normal; but, in general, a retardation of three years mentally is usually very significant. I may say that I have used these tests for nearly five years, with increasing confidence in their value, and that I believe that they furnish a very valuable "first aid" to the medical inspector in attempting to estimate the intelligence of the child with whom he is dealing. They ought, I believe, to be in the hands of everyone who has dealings with defective children.

But, the diagnosis once made, what should be the further procedure of the inspector? The ideal, of course, is institutional care for all, until the age of possible procreation is passed. If our states could so enlarge their institutions as to care for all defectives, the problem of the mental defective would not long remain a problem. But for many years this must remain an ideal. In a school system of any size, experience has shown that the best method of dealing with these children is to form for them a special class, in charge of a teacher who has had some

training in dealing with such children. No attempt is made in such a class to give the sort of work which is done in the regular grades, but instruction is individualized, and suited to the comprehension of the children. Such a class can also well serve as an observation class for the further study of doubtful cases. From such a class, too, transfers of the worst cases can be made to institutional care. The attempt to instruct such children in the regular classes is wasteful in many ways. In the small country school the problem is more difficult. Such children are a great discouragement to the teacher, and yet, if there is no hope of commitment to an institution, it is probably better that they should be in school, and subject to its restraining influences, than for them to run at large.

The State is just making a beginning of caring for such children. But, if very much is to be accomplished, present facilities must be greatly enlarged. The individual child is far better off under institutional care, he is happier, and capable of more development. But, most of all, it is only by working for better institutional facilities that the problem can be attacked at its source, and society saved from the evil brought upon it by allowing this poor stock to propagate itself generation after generation, filling our houses of refuge, our reformatories, our jails and our almshouses. The medical inspector should, I believe, devote himself to the social as well as to the individual aspects of the problem. He should, so far as is in his power, discourage the marriage of those whom he suspects to be of defective stock. He should work for better legislation along this line. He should educate the people to the value of caring for these unfortunates, and persuade parents of such children that institutional care is best for them. Once the child is born into the world, cure is of course impossible. The only remedy is prevention, and that must begin by forbidding procreation to those who are the bearers of defective protoplasm.

And finally, to make a concrete suggestion for the future, I believe that ultimately there should be here at Raleigh, in connection with the State Department of Health, a central free clinic to which could be brought from over the State children who are abnormal and sub-normal, for diagnosis and treatment. Such a clinic would involve but a small expenditure, as it would need to be open only on stated days for a part of the year, and would, it seems to me, gather up all the loose ends of this work as no other agency could do.

DISCUSSION.

Dr. A. S. Root, Raleigh: It has been a privilege to hear Dr. Chase's paper, because what he has said has a direct bearing on the work which I have been doing in the Raleigh public schools for the past two years

as medical inspector. I agree with Dr. Chase in that the management of these mentally defective children should be relegated to the sphere of the psychologist, in large degree. In addition to the routine work of the medical inspector, looking after the hygiene of the school, contagious diseases, physical examination of the children, etc., he has a specific duty also toward mentally defective children. You have to distinguish between dull children and mentally defective children. Both in dull children who are backward in their classes and in feebleminded children, the physical defects are relatively very much greater than in normal children. To give you an idea, in the examination of children who are in the room for defectives, in one of our schools here (we have twelve or fifteen defectives there) the average defective vision was thirty-five per cent, while the average among normal children is twenty-five per cent. Twenty-four per cent of these children had nasal defects, while the average among American school children is twelve per cent. The percentage of orthopedic defects was something like thirty, as against five to ten, the average for normal children. That is a small number of children from which to quote statistics, but I think even this number will show the excess of physical defects over normal children.

All cities the size of Raleigh should have a trained psychologist in connection with the school system, not only to diagnose the case, but to take charge of these children. We have in Raleigh, in one of the schools, a room set aside for these defectives. One of the teachers, who has been several years in one of the Northern schools, takes care of these children. The room is equipped with apparatus for making rugs, for carpentry, etc. These mentally defective children are, I suppose, the most eager children to get to school of all the children. Their minds are occupied all the time, and they get some training there which serves them in good stead in the future.

The removal of physical defects in dull children, as you all know, very frequently makes them grow normal mentally; that of course, is not true in the case of mental defectives. It has been my policy to make a special effort to remove the physical defects of these mentally defective children, in hope that they might develop mentally. In addition to the regular routine examination of the eyes, tonsils, adenoids, ears, nose, skin, glands, orthopedic defects, I make a special examination of the chest and lungs, spleen, liver—also the contours of the head, to find, if possible, if some of these cases are defective through traumatism. I think the duty of the medical inspector is to pay these children special attention, and after first finding that they are defective by the Binet test (if there is not a school psychologist to do that) to try to see if they can not get in some institution when the schools have carried them as far as they can.

Dr. L. B. McBrayer, Sanatorium: I have noticed with a great deal of pleasure the work Dr. Chase has been doing in various cities of the State, and have had the pleasure of observing at first hand some of his work in the Asheville schools. I am confident that this would be a money-saving proposition, if it were not considered from any other standpoint. That is, if the school children were properly examined in the first place, those retarded on account of physical defects could have those defects corrected and go along with their classes; and if those mentally defective were taken out of the regular classes, where they can not perhaps learn anything, and be put in classes to themselves, they would not be taking up the teacher's time and retarding the classes they are in. I believe the money now wasted in our public schools because of these defective children being in the regular classes would more than pay for the special equipment and teachers for these backward children. I am also convinced that in a very large majority of instances the medical inspector of schools would have to do this work. In Raleigh they are fortunate enough to have a trained psychologist to go around through the schools and study the classes. In the cities where they have separate school boards and separate health officers, they might be able to afford a psychologist to do this work. I commend it to the attention of the whole-time health officers of the counties, with the hope that as soon as they can get their work well in hand they may be able to add this to the present inspection of schools which they are doing. Of course, there is plenty of work for the county health officer.

I think the State is fortunate in having a man who is doing the work Dr. Chase is doing, and I think the University of North Carolina is performing its natural and normal function, and is carrying out the ideas of the president of that institution, when Dr. Chase goes out over the State making these studies and carrying this information direct to the people. Even publishing articles in the journals does not accomplish as much good as going around to the various towns and cities and showing the teachers how they can remedy the troubles they have.

This Association is fortunate in having Dr. Chase present, and I desire to express to him my personal appreciation of his valuable paper.

Dr. C. W. Stiles, Wilmington: Let me, first of all, congratulate the Society on hearing a paper on the medical side of psychology. This is a subject that the health officer must pay more attention to in the future than he has in the past. It is all very well for the health officer or medical inspector to examine the tonsils, adenoids, etc., but I can not get it out of my mind that the brain is just as important a part of the body as the stomach, and that a medical examination must include an examination of the actions of the brain. Dr. Nesbitt and I have been doing some of this work at Wilmington in making mental and physical tests there.

I have a feeling in this work that the term "mentally defective" is an unfortunate one to use, and we carefully avoid the use of that term in our work in New Hanover County. We tell the parents that we are studying the mental development of the child. We find some children ahead of their age, and that of course pleases the parents. From a practical point of view, I think it would be wise to use the term, "mental development," instead of "mentally defective."

Several points that came up in the discussion of the paper have interested me very much. Dr. Chase spoke of institutional life. He did not compare it with family life. A number of leaders in thought with whom I have discussed this question have taken the position that family life is the most important life for the child. I am very sorry indeed that I can not agree with them, but have to concur with Dr. Chase. I think that in many cases the parents are the greatest handicap the children have in life. I think it is safe to say that from ten to twenty per cent of all the children I have ever studied would be much better off in an orphanage than under the care of their parents. It is a sad conclusion to come to, and naturally the vast majority of mothers would not agree with it, but I can not escape the conclusion that in a great many of our families the parent is the greatest handicap.

Some one brought up the question of the money saved. Sometime ago Dr. Joyner asked me to make an offhand statement of the amount of money lost in North Carolina, in the rural schools of the State, because of the physical condition of the children. Of course, I did not have detailed information at hand and had to make a guess rather than an estimate, and my guess was that we were losing not less than thirty per cent of the money we were spending on education—not because we have not good text-books, good teachers and a good schedule, but because of the physical condition of our children. I believe thirty per cent is a very conservative estimate. We are certainly not getting returns on more than seventy per cent of the money we are spending on education.

Dr. Chase spoke of special schools. I wish we might have more special schools and get rid of the idea that we have to put every child through the same mill. I wish we could cut out a little Latin and put in more cooking. A great many of our girls would make better housekeepers if they knew a little more cooking.

School teachers should work hand in hand with the medical inspector. Teachers can be trained to the Binet tests in a very short time. Certainly any school teacher could soon learn to use a number of the psychiatric tests and coöperate with the medical inspector. There is a great advantage in going hand in hand. We have had the experience in Wilmington that a case of adenoids is found in the mental examination when

overlooked in the physical examination. The mental examiner found the mental retardation from the adenoids and sends the child back to the physical examiner. Of course, the ideal condition would be to have the medical examiners under the State Board of Health and the mental examiners under the State Board of Education and have them work in pairs throughout the State.

The point is brought out that mentally defective people should be urged not to marry. We are brought up against a pretty hard proposition there, and I am afraid we would have a pretty hard time getting it through. Personally, I would rather see Indiana's sterilization law. Of course, it will take time to bring that about, but I think the time will come when the State will adopt that law.

One final point. There is one point in our school system along medical lines which, to my mind, is fundamentally wrong. A high school girl is not permitted any more absences from school than a high school boy. I think the medical profession of this State ought to insist with the educational authorities that the girls of the high school should be permitted a greater number of absences per month or year, without having a mark against them, than the boys are permitted. It is absolutely cruel to make certain girls come to school during their menses. I have had a great many parents come to me about that question and beg me to take up the matter with the school authorities. My solution for that problem would be this, that in each school some lady teacher should be selected, one who is especially popular with girls, and that this whole subject should be placed in her hands and that she should be given the authority to excuse any absences on the part of the girls without any explanation at all. No questions should be asked, and that absence should not tell against the girl. Of course there would be some abuses in a system like that, but what of that? So much more good than harm can be done that the system would be justified.

There is one other point. In the work in New Hanover County we are coming across a very interesting and instructive feature in connection with the older girls. I would like to call your attention to that in the older girls, namely, the cases with enlarged thyroid glands. We have had in the school, I think, six special cases of enlarged thyroid glands, and in all these cases we found extreme nervousness, difficulty in study, and a seven-day menstrual flow. In talking with a man down in Atlanta and another in Richmond, I have found that they have made the same observation.

Dr. W. S. Anderson, Wilson: I just want to thank these gentlemen for the paper and for their speeches, and I want to say a word or two

about something which has not been mentioned exactly, that is, in the public schools of North Carolina, we have to accept the children as we find them, and you will all admit that it is a difficult problem to take a young child and tell his mental and physical capacity at the start. So I believe there should be a kindergarten attached to every public school in North Carolina, and that the kindergarten should be continued until the children are eight years of age. I do not believe any child should have to do regular school work until he is eight years old. During that time, if you have a first class physician and a first class teacher, they can very nearly determine the capacity of the child, and the children can be placed in the grades where they belong. This idea of putting children in school at six years of age and making them begin hard study and work at once is all wrong. If they are not capable of keeping up with the classes they will become nervous. If they are nagged and teased they will soon become disgusted and refuse to study and soon learn to hate school. If that same child were put in a kindergarten and allowed to play with education, because children get their knowledge at first from their eyes and fingers, if a kindergarten could be added to each public school in North Carolina, I believe that a great many people who are now in our asylums would be saved from that terrible fate.

SANITARY INSTRUCTION OF SCHOOL CHILDREN.

B. W. PAGE, A.B., M.D., HEALTH OFFICER ROBESON COUNTY, LUMBERTON, N. C.

The importance of sanitation is being recognized and the medical man has placed upon his shoulders the burden of being the pioneer in this field. With foresight and courage he has borne the responsibility, made the sacrifices, and led the van. He has raised his own standards and fitted himself for more exacting service without hope of reward, except in the consciousness of duty well done.

A wonderful change has taken place in the last quarter of a century to which all former ages so abundantly contributed. Scientific discoveries have dealt mortal blows to the doctrine of spontaneous generation. Already the specific germs of the most dread diseases have been discovered. Out of the recorded experience and observation of those who had wrought before has been assembled a working hypothesis which is being put to the test. Disease is preventable, and prevention is better than cure.

The medical profession now agrees that the information is sufficient. The charges are more than proven. What was belief is now certainty.

The accumulation of evidence can only increase the quantity without altering the quality. The other problems relate to its application.

Since sanitary authority does not extend to the rural districts, which compose four-fifths of North Carolina's population, the burden of sanitation must be placed on the shoulders of the general public. The great problem in sanitation then, is that of education. A movement of this kind must appeal to the intelligence of the people. It must awaken the public conscience, as Sir Francis Galton said, like a new religion. It must allay the prejudice and overcome long established customs. This cannot be accomplished in a day. It will take years to educate the public in the higher ideals.

For decades the public has seemingly refused to believe in this "monster of iniquity," and the lower strata of officialdom has joined hands with it, while the higher officials have considered it out of their domain. In all this the few physicians have waged the battle and the general public has looked on but has not seen.

The aroused public interest and the broader intelligence of the present make this an opportune time for the dissemination of the information collected by the medical profession. If once the real public, not the official public, can be reached and interested, the success will be at hand.

One of the most effective ways to use the material at our command in such a manner as not to arouse prejudice, and at the same time appeal to the common sense of the people, is through the schools.

In the sanitary instruction of school children, the health officer's success depends largely upon his ability to secure the coöperation of the teachers. He should endeavor to make the teacher in every community an assistant health officer. To prepare them for this work, they must be instructed by him at the teachers' institutes and teachers' meetings. They must be led to see that the success of their school is largely dependent upon the health of the community. They must be educated to see that the great majority of dull pupils result from some physical defect or disease, and that through their influence and that of the health officer a large per cent of these defects can be removed and the school work improved. They must see that contagious and infectious diseases are largely due to ignorance and carelessness, and that education is essential to their eradication. All teachers readily agree that education is a preparation for complete living, and that sanitation is an essential part.

Other factors that will influence teachers to coöperate in this humanitarian movement are: First, the State Law, which requires that sanitation shall be taught in the public schools; Second, the county

superintendent of schools, who has a very great influence over the teachers of a county; Third, through the press or from some lecture the citizen becomes interested in the community's health, and insists more and more on sanitary instruction of his children, as he understands its significance and importance. As leaders in the better tendencies of humanity, and in most of our altruistic activities, teachers realize that they have a rare opportunity to aid in the promotion of health work. Sanitary instruction represents the desire of the people to avoid disease, to live useful, wholesome lives, to protect themselves, their children and their families. It represents not only the self interest of the individuals, but their altruism as well. It represents one of the finest products of our civilization, the realization that health is the right of every man, and that the preservation of one's own health and that of his neighbor is a moral duty. It is the result of knowledge that disease is not a necessary evil sent by a chastising God, but is caused either by living things we call germs, which we get by direct contact with the sick, or by improper living.

The public school is the primary, all-important focus for the dissemination of health instruction. The child is at the plastic age when any form of instruction makes an impression, either good or bad, that is lasting and permanent. The interested teacher will readjust the school curricula so as to lay more stress on the essentials of human life and health. It is more important to educate future men and women in sanitation than to make them mental gymnasts. The school, supplemented by the home, must be the fountain head of health knowledge. The home, unfortunately, owing to the inefficiency of the school in the past, still lacks parents competent to instruct their progeny. The children of today and the future should have training in hygiene and life conservation to enable them later, as parents, to instruct their own children. But, unlike other studies, sanitation can be simplified. Through the children and through the various activities of a health officer, the entire population of a county can be influenced within a few years.

It is necessary that we correct some erroneous ideas that have existed in the minds of the public for ages. One of the most important factors in sanitation is the public education as to contact infection. Since there is no such thing as spontaneous generation, every contagious and infectious disease must come from a preëxisting and similar disease. The theory of aerial convection of diseases must be eliminated from their minds, and the fact that all contagious and infectious diseases are transmitted by direct or indirect contact substituted in its place. So long as people believe that these diseases are spread broadcast through

the air, just so long will it be difficult, if not impossible, for us to make much progess in our fight against their spread.

In Robeson County only forty-five per cent of the population is white, and fifty-five per cent negroes and Indians. Among the negroes and Indians the death rate was, when health work began, more than two years ago, like that for the vital statistics area of the United States, nearly twice as high as among the whites. One great cause of the high mortality rate among the negroes is their habit of visiting those sick with contagious diseases. This applies especially to tuberculosis. It seems to me that contact infection in this way is almost as detrimental to their health as their insanitary conditions around the homes.

The value of sanitary instruction cannot be overestimated. Sickness is a matter of daily occurrence in the life of the average individual. It is not a thing of the dim future, like death and old age. Unnecessary sickness is a direct charge on the individual concerned. If he can be made to see that a lowering of the morbidity and mortality rate is something that affects him financially, his active coöperation in securing a reduction in the amount of illness can readily be secured.

DISCUSSION.

Dr. Chas. T. Nesbitt, Wilmington: It seems to me that probably the most important factor in education lies pretty close to the school house. It is not so much what the child hears at the school house as it is what he sees at the school house. The imitative faculty is the one upon which the mental development of the human race is based. The child's education is the result of a large number of impressions; his future intelligence is the result of the assorting and correlating of impressions. This brings you face to face with the necessity for furnishing that child an impressive and continuously impressive object lesson in sanitation in the institution in which he spends a large part of his time, and which is owned by the local government. When a child goes to a school which is badly ventilated, when he breathes a vitiated, overheated atmosphere many hours a day, when his eyes are strained by badly arranged blackboards, when the desks are not arranged with reference to comfort and the effects of the light, when he is furnished with drinking water from a well of questionable purity, when the water is served from a bucket with a common dipper, and when, in the interest of economy, the water which is not consumed from the dipper is poured back into the bucket, when he has no facilities for washing his hands, when he has a boggy, mucky playground, when he has an open, filthy surface privy, it seems to me that it would be ridiculous to undertake to teach sanitation. We certainly must begin at the bottom. We must get our county authorities, our boards of

education, so actively interested in the welfare of the children under their charge that they will furnish these children with an impressive object lesson in sanitation in the school houses. New Hanover County is an example of this form of inefficiency. I do not think there is any more spectacular example in any other county of the State. It is possibly not so striking in some of the counties of the State. It certainly furnishes ample material for an argument of this kind.

Now, so far as the didactic teaching of sanitation is concerned, that is very important. In our work, Dr. Stiles and his assistants have given a tremendous interest in sanitation. Their work has become very attractive to the children. Instead of disliking it and staying out of school to avoid it, the country children particularly look upon it as a very interesting diversion. No opportunity is lost under these circumstances in impressing upon the children the principles of hygienic living. I feel that we have a great deal to be thankful for in that respect, and that New Hanover County and North Carolina will never be able to discharge their debt to Dr. Stiles for that work, and that for years to come we shall be reaping the benefits of this tremendous undertaking. The teachers in the public schools of New Hanover County are probably equal to those in any other county of the State. It is not easy to interest the teachers in a new branch to be taught in the schools. The teacher receives a small salary. Unfortunately the taxable funds of the State do not seem to be able to supply adequate funds for teaching. Some of the teachers become interested in the work; others get tired of it and soon give it up. The teacher usually lives in the community in which she works, or near that community. The health officer often finds it disagreeable, and I am sure the teacher finds it disagreeable, to be confronted with the criticism that is almost sure to result when she undertakes to change the settled habits and fixed institutions of the home. The teachers must be educated along this line. They must be given to understand the importance of health in the children, and they must be brought to understand that their work would be much easier with healthy children than with sick children.

With reference to the negro as a factor, I want to say that we have found less difficulty in some respects in handling the sanitation problem among the negroes than among the whites. We have found no resentment among the negroes. We have found some results from the seeds we have tried to plant. More than half the inquiries received by the health officers are from negroes. We have had less trouble in enforcing the sewer connection law among the negroes than among the whites. I could cite case after case of negroes who have mortgaged their homes in order to put in a flush closet. We have had a reduction in the negro

death rate in Wilmington. The work has been going on for only three years, but the change has been very marked among the negroes. They have had really less instruction than the whites, but they have certainly used it to advantage. I think the whole thing resolves itself into the realization of human responsibility, the realization of the fact that man can not live unto himself alone, the realization of the fact that individual welfare depends upon the collective welfare of man. If this fact could work itself into our minds, that for a man to be safe, the whole citizenship must be made safe, we would be much nearer the accomplishment of our task.

HOW TO GET DEFECTIVE SCHOOL CHILDREN TREATED.

D. E. Sevier, M.D., County Health Officer, Asheville, N. C.

Mr. President, Ladies and Gentlemen:

The problem of securing the correction of defects among school children has been extremely difficult and caused much speculation and anxiety among the full-time health officers of the various counties of the State, who have been eagerly working to this great end. After the inspection of forty eight schools and the examination of 2,791 school children. I found 34.5 per cent with defects, and have secured a correction of 18 per cent out of this number, with good prospects for a continued correction. The first duty of a health officer should be to inform himself thoroughly as to making a correct diagnosis of the various defects to be found in school children, and he should remember that the ultimate success of his work and of the methods he may use show how well he has discharged his trust.

The health officer must be entirely candid with both the teacher and children, and each must thoroughly understand the other in order to be successful. A little common sense and good judgment must be used in order to avoid any proposition that may arise in the examination of a child, which is worth a great deal more in the end than a physician may imagine.

The most crying needs of correction are to be found in children where the family physician is making his daily or weekly rounds, treating the child and suggesting that an operation is really not necessary and that the child will soon overcome his disease by his mode of procedure. The first duty of the health officer would be to see each physician of his county and say to him that he expects to inspect the schools of his locality during the school term, and that he will request the parents to consult with the family physician, and in case he should have an operation and need assistance he is at liberty to call his choice

or a specialist, which may mean much to him in the future. The health officer's duty will be to examine each child to be found in the schoolroom in the most delicate way possible, and, at the same time, if he uses good judgment, he will win the confidence and esteem of the child to such a degree that any thing he may suggest will be carried out in detail. I have made it a rule to try and win the confidence of the teacher as well as the child, and while making the examination instruct the teacher how to diagnose a case, and in so doing I have found that the children of these schools are closely looked after, and their parents have been advised by the teachers to have the various defects corrected.

I started out by examining the children privately, but soon abandoned this method, as I found they were more frightened than when examined publicly, therefore I have been more successful in examining before the class. In so doing, the work can be made more impressive, and you will not only handle the children more easily, but the results are far better. I send a communication to each parent where the child is defective, after the teacher has visited the family, which they are pleased to do, and explain that the work is not compulsory, but will be helpful to the child. I then follow this up by seeing the parent and also writing him again, pointing out why it is so important to have the defect corrected.

If you can select a child in each school with very pronounced defects and get this case corrected it will have great bearing on all the other children who have defects. I have found in lecturing to children it is wise to point out what is likely to take place in children with defects after they have become grown, and explaining that these neglected cases are the ones that fill such institutions as county homes, insane asylums, and the institutions for the blind. I would advise that each county health officer appear before the teachers at their first meeting instructing them along the lines of detecting contagious and infectious diseases, and their duty to the various patrons of the schools, which they will readily grasp, as this is a hard problem for them, and one that causes them much annoyance. At the same time give them to understand that your purpose will be to help them shoulder their responsibility, and at this time explain thoroughly the defects to be found in school children.

It gives me pleasure to state that the teachers in the county of Buncombe have been most pleasant and rendered me great assistance in many ways, and it has been my purpose to use each as my assistant in the school district which it has been my pleasure to examine. I trust it will be in keeping at this time for me to make mention of Professor

W. H. Hipps, Superintendent of Public Instruction of Buncombe County, who has worked hand in hand with me along these lines, and rendered great assistance, influencing the teachers, and also the patrons of the schools, along the lines of correcting defects. It is a fact that school inspection without the assistance of the teachers and the superintendent of public instruction would be a complete failure. It has been my desire and ambition to assist the superintendent in every way possible, and it has been my pleasure to be present at the closing of a number of the schools and make health talks, and during this time I always explain what school inspection means, and what it means to the defective child in after life. I always request mothers to remain after lectures if they care to know about any defects which their children are suffering from, which I have found many to take advantage of.

During vacation I believe the most important time to have the defects corrected, as the child will not come in contact with his classmates, and discuss with them the operation which he has just undergone, which frightens many nervous children. At this time the health officer, while delivering health lectures, will come in contact with the parents and point out to them the great importance of having the defects corrected, in order to give the child a chance at an age when he needs it most. I believe that the health officer must have the confidence and assistance of each physician in his county, for with him he can accomplish this great work, and without him he is greatly handicapped, and to a degree that it is impossible for him to make good.

It seems to me it would be an excellent plan for the county to secure one or two nurses, depending upon the population, to follow up closely the school inspection, visiting the homes of each defective child, advising with the parents the importance of having the defects corrected at their earliest convenience, and ascertain if the parents are able to have the defects corrected.

In conclusion, I wish to say that one other great factor in securing the correction of defects in school children is the endorsement and assistance of the clergy along these lines. I have found that their advice to the patrons of the various schools has been just about as far-reaching as any one other factor, and I have found several that have taken a great delight in this work.

DISCUSSION.

Dr. H. H. Utley, Smithfield: In discussing the subject of how to get defective school children treated, it is supposed that every school child in North Carolina has one set of parents, or, at least, each child has a father and a mother. When I began the school work last fall, I began at once to find adopted parents for the physically defective children of Johnston County. I spent three months trying to find these

adopted parents. I spent the remaining three months in visiting the schools, examining the children and getting them treated. The first thing I looked for was the adopted mothers. I attended the teachers' institute. I lectured and I talked to the teachers, explaining the necessity of having physically defective children in their school treated if they wanted to have successful schools this year. They heartily agreed to be the mothers of the children, the adopted mothers. I began then to find the adopted fathers. I went to the medical profession and to the ministers. They agreed to be the adopted fathers.

In getting the school children treated, it is necessary for them to have fathers and mothers, and practically all the time it is necessary for them to have other fathers and mothers besides their natural ones. It is impossible for the health officer of a county to reach the natural parent of every school child in the county, but the health officer can reach the adopted parents of every school child in the county.

After I had secured the adopted parents, as I said a moment ago, I then visited the schools. Right here is something that I dare say not many men know how to do, that is how to visit the schools. I don't know myself; I wish I did know. The success of a visit depends greatly on how the visit is made. I know a number of physicians in the State of North Carolina who are some of the best physicians I have ever seen to treat an adult population, but there are very few physicians in North Carolina who can treat children. In order for a county health officer to get treatment for physically defective children in his county he must naturally know something of child life. He must make a deep study of it. So one of the first things I did was to make a study of the children in the schools. The first thing that has to be overcome is the fear that a child already has of the visit of the county health officer. Sometimes it takes five minutes to overcome that fear, sometimes it takes forty or fifty or sixty minutes, but the county health officer who attempts to examine the school children and get them treated for physical defects without first getting the confidence of the children will have no results so far as getting treatment is concerned.

As I said in the beginning, I found some adopted mothers for the children. I told the teachers that they must be mothers indeed and in truth, and that they must teach their children not to fear them and not to fear me. Now, for the last three months of the school year, I visited sixty-five schools and examined over 3,400 pupils, and found seventy per cent of them physically defective, or about 2,200 physically defective. Of the 2,200, 1,000 have been treated.

Now, in order to get the child in the notion of taking treatment after you have secured the parents for him, you have to get the consent of

the child to be treated. That is a difficult proposition. I find that you can not get it in a forceful way. You must take on a child's life, a child's nature, you must become a child yourself. You must use child language. You must point out to him in a simple, easy way just what a physically defective child is. You must make him see and realize what it means to be physically defective. After you have done that, it is an easy matter then to get him to make up his mind to take the treatment. To encourage him in this treatment, I tell him of the report I have from neighboring schools. I work up a kind of jealousy among the schools, an anxiety to excel.

Now, as to the time for treating the physically defective children, I find that the best time is while school is going on, so that the other children may see the improvement in the child that has been treated, so as to get them to fall in line. I usually get a child who has been treated and one who has not been treated and ask the school to vote for the best looking or the one that can run fastest, etc., and in one hundred times out of one hundred they will vote for the child that has been treated. I attribute my success in getting children treated in Johnston County to the teachers and physicians, and what little I might have said to the children. I have been in the habit of giving the child a card stating the defects and advising him to go to his physician. At the same time, or shortly after, I advise the physician that I have given the child a card, and when the physician sees the child he will mention the matter to the child, and that gives him confidence in the physician.

Dr. C. W. Stiles, Wilmington: There is one point I would like to bring out in my experience and Dr. Nesbitt's that is slightly different from that of Dr. Sevier's. Possibly the larger number of workers at our disposal is the explanation of our results. We never examine a child in the presence of a child of another family. We examine members of the same family together, and we always try to have the mother present. Seldom indeed do we consent to examine an older girl without having the mother present. Everything we do is explained to the mother, and before we get through with the child the mother understands a good deal more about the child than she ever did before, from the physical point of view. Naturally, that could not be done working with a small force. We have, I might say, thirteen medical assistants this summer for the work, so that we are able to follow this method. When we take the hemoglobin of the child, that is explained; the blood pressure is explained.

Now, as to getting the child treated, that is the difficulty. Dr. Nesbitt and I discussed that matter pretty carefully before we began the work and finally adopted our plans. After the examination of the child we write the mother a personal letter—we do not use a blank, but write a personal letter, going directly on record as to our findings. We have told the mother in the meantime that our schedule will be shown to any physician she wishes to have see it. I must say that the physicians in the city have coöperated with us very nicely indeed. We have made many special examinations at the request of the physicians. We frequently make a note on our schedule as to the name of the family physician, and if we find anything very far wrong we call up the family physician and tell him of our findings.

The practice of examining children in the presence of other children has its danger. A little remark may be misinterpreted and repeated and distorted. Personally, I prefer to have the mother present, so that we can show her exactly what we find. If she understands, she will have that thing to attend to, if she can.

In connection with the tonsils, we had some difficulty at first. The difficulty was that the fathers "did not believe in cutting people up," as they expressed it. For some time we had a hard time getting around that difficulty. Finally a thought occurred to me and I think we have had more success recently. We showed the throat to the mother, put the flash light in and let her see the tonsils. Now, presume that it is a good large pair of tonsils. We do not argue from the point of the tonsils. We ask the mother if she can expect to have the fire burn if the flues are not in good working order. We tell her that though the child may get on all right with the tonsils as they are, yet if the child contracts diphtheria, his chances for recovery are very much lessened, and generally the parents give in. I may say that it is the exception that we advise personally that the tonsils be taken out. Of course, sometimes we emphasize the fact that medical aid should not be delayed. We put it this way—we find that the tonsils are diseased; consult a throat specialist and find out from him what should be done with those tonsils. We try to avoid the responsibility of giving direct medical advice, and we try to put it in the hands of the physician to give the final word.

Dr. Geo. M. Cooper, Clinton: I want to stop for a second to say that we can not stress too strongly the fact that medical inspection is the solution of the problem. You can not teach sanitation in any better way than by the medical inspection of the children. The next most important thing is to get the defects treated. I can not let Dr. Sevier's

paper pass without commenting him for his high record, more than fifty per cent of his defective children treated. That is an unusually high percentage. I have tried in every way I can to get defective children treated, but I have no such record as that. I find that it is a problem for the State, county and community to take up and treat children who are not able to be treated. That is a problem for the officers of the State to work out in conjunction with the State Board of Health and the medical men who are high in authority.

A SCORE-CARD SYSTEM FOR SURVEYS OF SCHOOLS.

B. E. Washburn, M.A., M.D., Health Officer Nash County, N. C.

An enterprise having for its purpose the enlightenment and betterment of the human race may temporarily meet with embarrassments and for a time have its progress delayed. But when public opinion becomes thoroughly committed to a proposition, only clear and intelligent direction is needed for it to become an activating force and a power in the solution of human problems. Protection of its people from conditions which tend to interfere with and impair their normal mental, physical, spiritual, and economical development is the highest duty of any government; and that state or nation is most enlightened and prosperous which has grasped this fundamental truth and undertaken to apply scientific knowledge toward the conservation of the lives of its citizens.

Education is a personal work and will vary in effectiveness and worth in any given society, for in all times and places there are wide differences in virtue, wisdom, and capacity among educators. Despite these differences in conception and efficiency among educators, however, each expresses, in some degree at least, the common conception and energy of his age and country. Therefore, the first essential for a successful educative effort is that the community as a whole should have a true estimate of the nature of the work to be attempted and its educative value.

All modern pedagogy teaches that the final object of our public school system is embraced in the definition given by Herbert Spencer that "Education is preparation for life." Although expressed many years ago it is only in recent times that the true significance of this definition has become realized. Our school systems have become more democratic and the curricula have been made to include studies that are

practical and that prepare the student for actual life. And it is just now that health, one of the most important subjects, has been given a place in the school work. Since this is true it offers a great opportunity to the physicians, as guardians of the health of the State, to coöperate with the teachers and school boards in giving this important subject the position it should occupy in the training of our future citizens. By work in the schools we are able to accomplish the elimination of the preventable mortality among children and to increase their efficiency; and through the acquisition of health habits in the children we are able to raise the plane of citizenship of the next generation.

The way to accomplish these results and to give health its proper consideration is by methods that will cause not only the school but the entire community to have a true estimate of the nature and value of public health. A great deal toward the accomplishment of this end can be attained, I think, through the coöperation of the county boards of health and education in carrying out a method of standardization of the schools along the lines of health, sanitation, and community improvement. A method that has achieved remarkable improvements in other departments of human endeavor is the score card system and I believe it will prove applicable to health work.

The first score card that was used to standardize an industry was devised in 1904 by Dr. Woodward, Health Officer of the District of Columbia, for the inspection of the dairies supplying the city of Washington. In 1906, Professor Lane, of the Dairy Division, Washington, D. C., devised a dairy score card that is now being used in many parts of the United States. Since 1912, the State Board of Education of Arkansas has been using a score card for rating the equipment of the rural schools in the State. In 1913, the Indiana State Board of Health used a score card for making rural sanitary surveys. Following a hookworm campaign in Brown County, Texas, in 1913, a score card was used to stimulate interest in sanitary improvements in the rural schools of the county. For several years the American Medical Association has been using, on a large scale, this method of rating the medical schools of the country. These are, so far as I have been able to learn, the only instances in which the method has been employed.

Excepting the Dairy Score Card and the method used by the American Medical Association, the others were very simple and did not go into details sufficient to stimulate interest in improvements. The Indiana card, for example, consisted of a score for grading country

homes, there being ten divisions, each of which counted ten points. The divisions were as follows: Site of the house, sanitary condition of the premises, house, cellar, water supply, sewage disposal, barn and its surroundings, disposal of manure, and health. No standard was set to create an interest in improving the conditions or to suggest an ideal toward which each home could work.

The following score card has been devised for use in the rural schools of Nash County for the coming year. This card is made to embrace each detail of importance about the school and its surroundings and regarding the health of the pupils. Provision is made for grading the schools according to the points scored as Class A, Class B, or Class C schools. The card is not intended to be on the order of a police regulation but is simply a statement of the facts as found at each school and the setting forth of an ideal that each school should strive to attain. Credit is given for such conditions as tend to produce better health and education and is withheld for conditions of an adverse nature.

SCORE CARD FOR RATING THE SCHOOLS.

NASH COUNTY, NORTH CAROLINA.

Name of School .....
Township .....
School District No. .....
Race .....

To the Teachers and School Committeemen:

To become an effective instrument for the protection of child-health it is essential that the school should be a sanitary and healthful place for children to live in; and to obtain the best results from their school life it is necessary for the children to be free from acute illness and chronic physical defects. In order for a school to attain and keep its important and rightful place in the life of a community it must be made attractive in itself and must arouse in its patrons a sense of pride and coöperation. Activities outside of the routine class-room work must be stimulated and directed.

A committee composed of a member of the local school committee, of the teacher or teachers, and of the pupils, and to be known as the Betterment Committee, will be selected in each school. The duties of this committee will be to coöperate with the County Health Officer and the County Superintendent of Schools for the betterment of the school and its surroundings.

In order to place the work of the local committee on a permanent basis and in order to properly classify each school and each community this School Score Card has been devised. The aim is to fix a definite working standard of ideal conditions in all points which make for greater efficiency in school work. *Schools scoring 90 to 100 points will be rated as Class "A" Schools; those scoring 75 to 90 points as Class "B" Schools; and those scoring 60 to*

75 points as Class "C" Schools. Two inspections will be made during the year by the County Health Officer and the County Superintendent of Schools and any school advancing to a higher class during the school term will be placed on the Honor Roll.

B. E. WASHBURN,
County Health Officer.

OSCAR CREECH,
County Supt. of Schools.

(Reverse side.)

NASH COUNTY SCHOOL SCORE CARD.

Grading of ..... School.

	Points Allowed	Inspection		Remarks
		Date, First	Date, Second	
I. GROUNDS (20 POINTS).				
1. Site of building and condition of yard as regards health. (Absence of rubbish, etc.)	3			
2. Condition of grounds as regards beauty. (Flowers, trees, etc.)	3			
3. Provision for sports. (Play grounds, swings, see-saws, etc.)	3			
4. Type and condition of privy. (See State Bulletin for classification)	6			
5. Water supply. (Pump)	5			
II. BUILDING (20 POINTS.)				
1. Condition as regards cleanliness	5			
2. Painted and in good repair. (Condition of walls, stairs, etc.)	5			
3. Arrangements for heating, ventilation, and light. (Wood supply, window shades, etc.)	5			
4. Water in school. (Cooler and individual cups)	5			
III. EQUIPMENT (20 POINTS).				
1. High school, college, or normal trained teacher. (First grade certificate)	5			
2. Attendance of teacher at Teachers' Association and interest of teacher in Reading Circle work	4			
3. Teacher's table and chair	2			
4. Class work equipment (Globes, maps, etc.)	3			
5. Style of desks. (Patented)	3			
6. Library. (Thirty dollar)	3			
IV. PUBLIC HEALTH (20 POINTS).				
1. Percentage of pupils having physical defects remedied. (Eye, ear, nose, throat, teeth, etc.)	10			
2. Percentage of pupils that have been vaccinated against smallpox	3			
3. Percentage of pupils that have been vaccinated against typhoid fever	1			
4. Percentage of children infected that have been treated for hookworms	6			

NASH COUNTY SCHOOL SCORE CARD—CONTINUED.

	Points Allowed	Inspection		Remarks
		Date, First	Date, Second	
V. COMMUNITY ACTIVITIES (20 POINTS).				
1. Active Betterment Association	4			
2. Boys' Corn Club*	4			
3. Girls' Canning Club*	4			
4. Literary Society or Debating Club	4			
5. Amount raised for betterment of school. ($50)	4			

*A Poultry Club will be accepted.

By the use of such a card a community is shown how the school and its surroundings may be made healthful for the children, and it is also shown the relative importance of the different details so that it may be guided in the improvement of the school and the placing of it in its proper relation to the life of the people. The card also serves as a means of showing what other communities are interested in and are accomplishing and gives a school and community a means of being advertised comparatively. And by accomplishing these things the people are educated and the community and the county are made better and more healthful places in which to live.

DISCUSSION.

DR. E. F. STRICKLAND, Winston-Salem: It is perhaps as unlikely that we shall ever have a perfect system of sanitation and absolutely good health among our citizenship as to expect that we shall ever have a universally high degree of broad education. The work that we are engaged in in North Carolina is comparatively in its infancy. I thank Dr. Washburn for his paper, and the secretary of the association for giving me an opportunity to discuss it.

The idea of marking public schools and grounds by a score card system is new to me. I have realized since visiting a number of schools which it has been my pleasure to visit in Forsyth County during the last school term, the very great importance of having better regulations in the schools and in the grounds in which they are located. I have tried to impress all the teachers in the schools and likewise the children with the importance of ventilation, proper lighting, proper heating, proper desking, etc. If you have not the proper construction of a school building, and if you have not the proper facilities added thereto for seating, lighting, ventilation and heating, how needless a task to call the attention of these teachers, these coöperating teachers, to the im-

portance of carrying out your instructions. How simple and inconsistent it must seem to the child, who, with his ready mind, perceives at once the importance of the instructions and likewise the inadequate facilities. In my final report to our county board of education I made three suggestions. One was a recommendation for the abolition of the common drinking cup in all the schools of our county. The second was the abolition of the open well for all the schools, and the third was that a sanitary privy be installed for every school and for each sex. Our county board of health met soon thereafter and were kind enough to take up these suggestions and pass a resolution recommending the county board of education to carry out these instructions. I think it would be wise to have definite ideas and uniform plans for the school houses, in erecting new buildings. I think there should be a definite system by which these ideas could be put into execution. I think that the schools already built should be put into a sanitary condition. I think, from a competitive standpoint, it is wise to have a score card system so that we can ask and expect those in control of the schools to measure up as nearly as possible to the standard we have set. I think there is a great deal in this card. Whatever card might be used, I think it is proper and right that a standard be fixed and that encouragement be given so that the standard may be reached, or at least approximated.

Some gentlemen on this floor today has referred to the negro schools in his community. I want to say that in the visitation of the schools it has been my pleasure to visit about sixty-five, I believe, during the past term, and several of these were negro schools. You do not know, unless you are in the work, how you will be received and what encouragement you will get from the negro teachers and pupils in these schools, how eager, how anxious, how hungry, as it were, they evidently are for instruction, and what assurance they give you of the fact that they are needy, that they are willing, and that they mean to serve. I find in some of these school houses a few growing plants or flowers, I find a little attention paid to the sodding of the ground outside, I have found in many instances around these school buildings much more care and attention is given the grounds and less trash and rubbish than I have found around many of the white schools. I talk to the negroes about ventilation. I tell them that before the Civil War tuberculosis was almost unknown in their race, and I contrast it with the present condition. I tell them that the lack of free outdoor life in the fresh air and sunshine is the reason for their condition now, and that they must return to that life.

Now, as to score card I want to say that prizes might be offered, competitive prizes, just as you do in schools for mental development

and for oratory, etc. It is all along the line of education; it is all along the line of physical development, which is essential and of paramount importance to mental training, for without the former, of what value is the latter? I believe in the score card system.

Dr. P. W. Covington: The whole-time county health officer has of course, a great many important duties to perform, and among them I don't know of any that is more important than the sanitary inspection of school buildings and school premises. In fact, the State, appreciating the importance of this duty, has made it mandatory to make this annual inspection. It is with a view of standardizing that work that Dr. Washburn has edited this score card. I hope it will not be long before it, or a similar one, will be adopted by the health officers of the State. At a commencement recently in one of the schools of the State, there were twelve girls and one boy who were receiving their diplomas. What impressed me most was the fact that each of them was extremely humpbacked. All of them, I knew, had spent from four to eight years in that school. So that school was sending out, year after year, graduates particularly susceptible to all chest diseases. While the seating arrangements of the school might seem a very small thing, yet we can not realize the influence it may have on the health of the children. Of course, there are other important details, the water supply, the condition of the school building, the ventilation, and quite a good many others. So with such a score card any health officer can visit a school building and, after the examination of the grounds, credit each school with the number of points it deserves. By averaging all the scores he might get the average score of say 60 per cent for the schools of his county. No doubt the next year he might find the index raised to 65 or 70 per cent. By further urging and by bringing more influence to bear he might see the index raised to 75 per cent. So it is an important thing that we have a score card of this type. I would like to see a committee appointed to examine this card and make some recommendations to the county health officers with a view to adopting this system.

Dr. W. M. Jones, Greensboro: I have listened with a great deal of interest to this discussion. We have tried to formulate a score card system in Guilford County, but our card is nothing like so complete as this card. In ours we include the buildings, the grounds, and the manner of obtaining water, the privies, etc., light and ventilation. Then the board of education has some requirements as to maps, dictionary, library, globes. We give a diploma to all those who fill the requirements, and in the office of the board of education and in the office of the board of health there is a list of those schools that reach the standard. The name of the school is put on the diploma, the date received, and the

teacher or teachers at the school. The diploma is signed by the secretaries of the boards of health and education and a seal put on. That is as much as we have done. We have not tried to divide the score by points. I have this for only one year, so I do not know what improvement has been made.

FUNDAMENTAL PRINCIPLES IN RURAL QUARANTINE.

ARCH CHEATHAM, M.D., DURHAM, N. C.

The word quarantine is from the Italian "quaran-tá" forty, because originally it lasted forty days. "The period during which vessels from infected or suspected ports are debarred from entering into a healthy one and from landing their goods, crew or passengers unless to be confined in a lazaretto."

Webster's definition of quarantine is "To compel to remain at a distance or in a given place without intercourse, when suspected of having contagious disease." The latter definition applies to my subect.

The first fundamental principles in rural quarantine or segregation laws was given by Moses, "When a man shall have in the skin of his flesh a rising, a scab or a bright spot * * * and the priest shall look on him and pronounce him unclean * * * and the priest shall shut up him that hath the plague seven days. And the priest shall look on him again the seventh day * * * and if the plague in his sight be at a stay * * * Then the priest shall shut him up seven days more * * *" (Full text in Lev. xiii: 2 to 6).

In the country or rural quarantines we often have to contend with conditions that are hard to control, such as this: It is rumored that Mr. or Mrs. J. or some of the children are sick. Sister A., brother B. or neighbor C go to see them, not knowing what the disease is, and having no one to leave the children with, sick or well, they take them. If they hear that the sick person has whooping cough, measles or mumps, they will say, "Why, they have to have that anyway, and this is just as good a time for the children to have it as some other time." So they make the visit, and often such visits spread the disease through the neighborhood, before it becomes known to the doctor in the community or to the health authorities, for many people do not think their children need the care of a physician when sick with such diseases. And, again, in rural sections, when the people gather at church, they often have to take all the children, and the children are brought into more or less contact with children from many homes, in some of which there may be persons sick with communicable diseases. Often, too, the sick child has come along also. What is said about the family and church will apply to

the Sunday School and day schools as well. When whooping cough, measles, mumps, scarlet fever, diphtheria and chicken-pox are known to be present in the community, parents should be watchful, for frequently children are sick for some time before the nature of the illness is recognized, and if during this time they mingle with others, the disease is likely to be spreading. It has been said that we are long on law-making and short on enforcement. "Community betterment will never come by law, but by higher community ideas and ideals." Law does not make ideals, but ideals make laws enforceable.

"The whole method of dealing with the cases of communicable disease should be arranged in such a way that there is as little interference with the well members of the family as is consistent with proper protection. The less burdensome the process is made, the more prompt physicians will be to report their cases and fewer concealed cases will there be." By making laws that are not enforced or followed, we create lawlessness. We create in community life the very element of weakness which we seek by law to mend. In the early colonial settlements, especially New England, the ideas upon which the settlements were built leavened the whole mass of people. "We have a tremendous law enforcement machinery but little idea, sentiment and sympathy for the higher purposes of community life." The fundamental principles of rural quarantine or any other quarantine is therefore education; education in health and sanitary matters, for ignorance has developed disease and death. Ignorance does not know or care to know how to avoid infection or the spreading of disease. "Ignorance, always self-sufficient, scoffs at scientific truths." Ignorance in its worst form of superstition refuses to fight against disease, saying, "It's God's will" that hundreds of thousands of innocent children should die painful deaths.

Ignorance and superstition have been too long teaching submission to the supposed will of some "Divine Power" creating children only to murder them. Education will stop that nonsense. Prosperity may feed the children, but knowledge must protect them.

We can not hope for much improvement in rural quarantine until we educate the people to the fact that such diseases as whooping cough, measles, mumps, scarlet fever, diphtheria and chicken-pox are not necessary diseases that children must have, and each householder should give special attention to the welfare of his neighbors' children, *by keeping at home those of his own sick with a communicable disease until all danger of spreading the disease is passed.* No right-minded citizen wants to be responsible for the occurrence of sickness in others, sickness that may deprive them of their life.

We must have a well thought-out ideal for community betterment and

stand for it and let our people know we stand for it. Then we will have the coöperation that will make rural quarantine effective, and then the health department will limit the spread of communicable diseases.

DISCUSSION.

Dr. G. M. Cooper, Clinton: I want to say that, of course, the principle of quarantine is broadening and being established in the minds of the people. I want to say this much in regard to fumigation, whenever the day arrives when we have the same confidence of the general public in preventive work as they now have in fumigation, the millenium will be here, as regards health work.

THE PLACE OF THE COUNTY PHYSICIAN IN HEALTH WORK.

L. N. Glenn, M.D., Gastonia, N. C.

When I was asked by our ever alert Secretary to write a paper on the above mentioned subject I felt almost as if I had been placed in a row-boat without oars. Our progress along health lines has been so marvelously rapid during the last decade that we ordinary county physicians can scarcely keep up with the march. Several counties in our good State have employed whole-time health officers and have made such rapid strides that the health laws of the State have been revised and re-revised to keep up with progressive ideas until the county physician who can keep up with the laws is a rarity, his knowledge thereof having been entirely disconcerted and he again being put to sea.

About all that he is sure of since his powers have been curtailed is that he is the all-important official, who, when it comes to attending to paupers and prisoners, can say with William Cowper in his "The Solitude of Alexander Selkirk":

> I am monarch of all I survey,
> My right there is none to dispute;
> From the center all round to the sea,
> I am lord of the fowl and the brute.

The fruits of his past labors are now to be gathered by those who did not plant. He has been, but is not, in the eyes of many of those who gloriously march in the vanguard of our health forces, and who, with the fly on the chariot wheel exclaim, "What a dust I do raise."

These same progressives would place him high and dry on some secluded sand-dune and artfully and triumphantly label him in his proper place among the hulks and fossils of a barren past, so great and so satisfactory has been their splendid evolution from the insignificant position occupied by them in the not-very-long-ago past; in the days

when the lamented Wood with nothing to work with, with no sentiment to help, nor colleague even to encourage, builded wiser than he knew; in the days of the recently retired Lewis, who crowned his almost lonely administration by discovering and placing at the head of our health work the best secretary in the whole United States—Dr. W. S. Rankin. These were the men who laid the very foundation for the splendid aggressive officials of today to build on.

It fills us with zealous pride to see strong brilliant young men like Rankin, Shore, and Ferrell, together with their able corps of assistants respectively, giving to their beloved State of North Carolina the very best service within them for the nominal remuneration they receive.

It warms us to active effort when we observe Stiles, and his willingness to forego the eminent success which could in no way escape him in private practice, that he might render a broad and humanitarian service not only to the land which gave him birth but to mankind in general.

Indeed, are we filled with admiration when we see such wonderful manifestations of self-sacrifice and devotion to health work as is shown when such men as McBrayer voluntarily give up a splendid and lucrative practice in one of the very best cities of our whole Southland, built up by years of relentless effort both mental and physical, sever the strong ties of friendship which have more or less unconsciously bound strong minds and strong hearts together in an affection that is never realized until broken, and dedicate his future life to the noble and glorious work of tearing the very tentacles of the Great White Plague from the lives of our boys and girls, our young men and our young women, and offering back to the State, for its service, a splendid citizenship.

When we observe the rapidly growing sentiment for a Department of Health with its head a member of the president's official family and feel sure that this great achievement is a thing of the near future, we almost lose sight of the insignificant county physician far in the rear.

When we contemplate what has been done, how it has been done, and by whom it has been done; when we take stock, as it were, of the condition of health affairs today and again look around at the generals who are so brilliantly directing our health forces, we must likewise look for the private in the ranks in order to arrive at a proper estimate of our conquering forces. This, my friends, brings us to the discussion of the place of the county physician in health work. Instead of having to deal with a subject void of value, without any position to take, without any theme to stress, without any ground to occupy or point to make, we make bold to say that we have been made sponsor for that all-important class of physicians who in a very large measure constitute the very

basic element of our whole health structure. In the past as well as at present they may well be called the Paul and the Apollos of our health work, since it was they, and is they now, who did, and are still doing, the planting and watering that our none the less appreciated advanced health officers might gather the increase. May it not be forgotten that the harvesters of today have not been the planters, the sowers, or the tillers of the past. These advanced health men have come on the scene of health service after many seasons of modest labor by the ordinary county physician. Regardless of his poor crops in the field of health work he has never yielded to discouragements and disappointments, but steadily and persistently plodded on till he has realized that his labors are at last fruitful.

To be sure, we do not lay claim to all that is being done, but we do claim that in a very large measure the humble county physician of the past has engendered a certain amount of that strong sentiment that has brought about our present advanced position in health matters. The place of the county physician in health work is a most strategic position. He has a far greater opportunity for good constructive work, if he be the right kind of a man, than almost any other official, while on the other hand he has a great opportunity to do destructive work, if he be a man of sinister motives.

Our county physicians well know of the many times in their work that they are in a place to wonderfully aid our health forces and also are aware of the fact that often they are in a peculiarly tenable position for the man who wishes to nullify the best efforts of able and energetic health officers.

Slowly, perhaps, but most surely, can he crystallize sentiment for substantial health work if he be the right kind of man.

Just so surely can he retard health work if he so elects.

He can be a most valued constructor or a much deplored destroyer. His position is well-nigh invulnerable and his activities, either for good or for evil, are especially fruitful.

He should be a man of many good qualities, possessed of an unlimited supply of tact, prudence, and energy, and above all things, a teacher even more than a doctor. He should be able to eradicate ignorance and prejudice and impart enlightenment and a spirit of liberality and consideration.

Because he is not a whole-time health officer by no means limits his open fields of usefulness nor does it prescribe limited duties for him. He has the broad liberty and open opportunity to do any of the many things that are essential to the success of the best of our whole-time men.

He has the same opportunities that they have except that he is not so well paid and may perchance not be able to give his work the amount of time necessary for accomplishing results.

Only a very few years ago it would have been an absurdity to have advocated a whole-time health officer in any county in the State, but today we are very proud indeed that we have perhaps more whole-time health men than any state in the whole Union. You might say that our health work never occupied the respectful position that it now occupies until we had some whole-time men, but you must admit that the whole-time men are but products of evolution in which the county physician must be given some share.

In health work, as in other things, it takes money to do things. In most of our counties we will find men of excellent business qualifications on the boards of county commissioners. These men are incessantly harassed with all kinds of propositions which are no more than so many tools trying to get under the lid of the county treasury. These commissioner-guardians of sacred funds must of necessity keep the lid well nailed down. In order to get a peep under the lid for the advancement of public health, the county physician must be plausible, tactful, resourceful, determined, respectable, and respectful, and if these qualities properly exercised fail to get funds I would almost condone calling in a high grade yeggman. Above all, the county physician must not only be possessed of these characteristics, but he must display energy and show results.

Decidedly one of the greatest functions of the county physician is to discharge faithfully his duties to his fellow health workers, and most especially to the Secretary of the State Board of Health. He should keep this official fully advised at all times as to the condition of health matters in his county. He should be prompt and accurate in all his reports to his superior officer and call on him freely for advice and information, to the end that their united efforts may, as they surely will be, crowned with success.

Let us then encourage and assist the county physician in his trials and tribulations. He is an indispensable man and as much as we would like to supplant him with whole-time men it remains a task for the distant future. Many counties from force of circumstance must keep him indefinitely.

To some of you he may appear an insignificant element in our health work, but I must contend that he is just as indispensable as he is insignificant.

The increase in the number of whole-time men will in a large measure depend upon the development of the county physician. I am sure you

are cognizant of the fact that most of our present whole time men were at one time members of that humble class of men modernly dubbed "ordinary county doctor."

The point has been stressed that the county physician is not entitled to, and has no right to be honored with the distinctive title "Superintendent of Health" but as far as I am informed, I do not think I am misrepresenting him when I say for him that he is not clamoring for nor has he ever clamored for such a title. That label he has never considered essential to his success nor has he ever envied the man who does. Their right to do whatever health work they see fit to do has never been abridged.

Conclusion.—I must contend then, that, for the present, the county physician has a place in health work. He is a strong spoke in the wheel and cannot at present be dispensed with. He has been a potent factor in developing and securing what we have; he is a potent factor in maintaining what we have; he is a potent factor in evoluting from his sphere to that of the whole-time health officer, and, except as he evolutes, may his tribe never decrease.

DISCUSSION.

Dr. H. D. Stewart, Monroe: But few people, perhaps, recognize the difference between a county physician and a county health officer. I think we need a new name. You know people in general, in the mass, look upon the county physician as a law giver in general and as a public servant in general. They call on him for anything under the sun, no matter what they want. The county physician can not do everything under the sun for nothing. He can not attend labor cases and lecture at schools and go all over the county and do what is required to be done. The doctor can not neglect his general practice and do the work that ought to be done. In some counties he gets $200 a year, and in others $50 a year, hardly enough to pay him for one trip over the county. Until we get the people to realize the value of health and get them to spend more money on health, not much can be done. I am glad to say that has been done in several counties. It is a strange thing that law makers will spend more money on hogs than they will spend on people. The county commissioners are afraid to spend money on health work. I think they ought to do it anyhow, and public opinion will come their way eventually, if they get results. It makes no difference what a man does, there will be many people to oppose him, but if he is right he will eventually have all the people with him.

Dr. J. M. Parrott, Kinston: I take it that every thinking man is more or less interested in public health work. The time has come in North Carolina when we must put ourselves squarely on record in favor of the whole-time health officers for the counties if we expect to go

forward in health matters. Therefore this is a question that deserves a great deal of consideration. The fact that this is necessary does not mean that we ought to rush into it without special thought. I am very much of the opinion that the State at large is now ready for a more aggressive campaign for whole-time county health officers than we have had up to this time. During the recent twelve months I have felt the wisdom of trying out the work here and yonder before going into it on a broad scale. It is a matter of too much importance to run the risk of failure by going into the matter before we are ready. North Carolinians are peculiar in some ways. They want to be shown. They are almost intolerant of mistakes. The whole-time health officer is almost a new thing in sanitary matters in this country, and we have to blaze our own pathway. In doing this, confronted by the conditions existing in the State, it is far better for us that we move along slowly and surely, as we have done in the recent year. However, the movement has been sufficiently tried now for us to push forward with increasing confidence.

One of the papers very truthfully referred to the fact that this is a day of specialism. That being true, this is a day when the work of the health officer must be done by a health specialist. In fact, it is nothing but right that it should be.

Some time ago I was reading a paper by a distinguished writer in which he spoke of the work and responsibilities of doctors. He said the doctor should look after all the children in the neighborhood, advise with the parents in regard to social affairs in the home, advise the people as to hygiene—in fact, he made a lengthy catalogue of the duties of doctors. I made a little calculation, and I found that it would take thirty-six hours out of every twenty-four to do all those things, leaving no time for himself or to make a living for his family. Now, we can not expect physicians to do the health work in North Carolina. It is our duty to support the officers that are elected, but when we have done that we have done about all we can afford to do. The doctor has a responsibility in regard to health matters that he should not shirk, and that none of us will shirk. But, on the other hand, we must realize that we have reached the point when we must set aside a man, and it takes a man, to do this particular work.

Dr. C. W. Stiles, Wilmington: I should like to speak in reference to the question of a whole-time health officer.

It seems to me that the logical trend must be in the direction of the full-time health officer. No practitioner can serve satisfactorily in that capacity, for the reason that the work of the health officer is police work, and a man can not exert himself in police work against the people upon whose fees he is dependent for his bread and butter.

The point has been brought up that the practitioner must support the health officer. In following out the full-timers, I find this officer is not supported unanimously by the practitioners. Not long ago I attended a meeting of health officers in another State, and the question came up, what is the greatest obstacle in the way of public health work? It is an interesting fact that the health officers at that meeting replied almost unanimously, "the practitioner." That sounds perhaps like a bold statement, but that was the judgment of the meeting of quite a number of health officers,—that the greatest obstacle they have in their work day after day is the general practitioner of medicine. This view of those health officers gave rise to a good deal of reflection on my part, and I have asked myself a good many times since then what is the reason the general practitioner does not support the full-timer more than he does.

The point has been brought up that the practitioner must support the health officer. I want to speak on that. In following out the full-timers, I find this officer is not supported unanimously by the practitioners. Not long ago I attended a meeting of health officers in another State, and the question came up, what is the greatest obstacle in the way of public health work? It is an interesting fact that the health officers at that meeting replied almost unanimously, the practitioner. That sounds perhaps like a bold statement, but that was the judgment of the meeting of quite a number of health officers, that the greatest obstacle they have in their work day after day is the general practitioner of medicine. The unanimous view of those health officers gave rise to a good deal of reflection on my part, and I have asked myself a good many times since then what is the reason the general practitioner does not support the full-timer more than he does.

In the last twenty years I have been in health work and have had to deal with two classes of people in particular. One class is the practicing physician and the other is the school teacher. In my opinion, the school teacher is today the person who supports the health officer more than any other person in the community, and if I were to estimate in a very cold-blooded way my experience of twenty years past, I would say that the difference between the aid given by the practitioner and the aid given by the school teacher is this, 90 per cent of the practitioners will make a speech in favor of public health work, and when they get back to their general practice, about 10 per cent of them will put into effect the words they have spoken. With the school teacher you are dealing with a person who comes to you, rolls up his sleeves, and says, What can I do to help you? Working with both classes of people, I want to say to you frankly that it is the school teacher of the South

today who is responsible for the public health work, and not the physician. The school teacher is the person who is forwarding this work. If all the medical practitioners were to die today, the movement would go on supported by the school teacher. I feel that the medical practitioner has reached today almost a crucial point in this matter, and that unless the general practitioner does support it more actively, the health movement will become a movement of the schools rather than a movement of the medical forces. I want to urge that the practitioner get at the back of these men who are putting in all of their time in health work.

THE NECESSITY FOR A WHOLE-TIME HEALTH OFFICER: HOW ALONE HE CAN BE PROCURED.*

JOHN BLOUNT, M.D., WASHINGTON, N. C.

I notice upon the program that I was to discuss the County Physician in Health Work, but I prefer rather to discuss the necessity for an able county physician in each county devoting his whole time and energy to that work and how alone he can be procured.

It is absolutely necessary first to "find out the cause of this effect, or rather say the cause of this defect, for this effect defective comes by cause."

In my opinion there is but one way, and that through the combined coöperation of all the physicians in each county. All factional differences, all county politics, all damning of preventive measures with faint praise must be relegated to that oblivion to which they should so long ago have been consigned. Since man is the source and reservoir of human infections it is plain that man is man's greatest foe in this regard. The fact that most of the communicable diseases must be fought in the light of an infection specific from man to man is one of the most important advances of preventive medicine, but the task of prevention is rendered much more difficult from the fact that most of the infections depend upon the control of man himself. We can arbitrarily control our environment to a very great extent, but the control of man requires the consent of the governed. For these reasons it is easier to stamp out yellow fever than to control typhoid fever. It is easier to suppress malaria than tuberculosis.

And yet, though much of his effort goes unheeded, the true physician finds great satisfaction in the study and application of the principles of prevention, not even aspiring to the high tribute paid Edward Jenner by Thomas Jefferson: "You have erased from the calendar of human afflictions one of its greatest scourges. Future nations will know by

* This paper was read as a discussion of the preceding paper, "The Place of the County Physician in Health Work."

history alone that the loathsome smallpox has existed and by you has been extirpated." Yet how many of us in our daily lives see this measure fail absolutely because we are not united to do battle in behalf of vaccination.

The time has come and is now at hand when we can trust no longer the great body of physicians to do this great work. The time has further come when the great body of physicians must recognize the necessity of having a whole-time health man who will keep these matters constantly before the public.

This is an age of specialism, and the specialist of today coming most rapidly to the front is the public health specialist. The day has long since come when the surgeon who, in ignorance or negligence of scientific facts, by the employment of a faulty technique secures a bad result is measured by his folly. The day, thank God, is at hand when the general practitioner, in ignorance or negligence of the powers of preventive medicine, failing to accord the public the protection that is due them, will be weighed in the balance by that same clientele and found wanting.

No disease has been dealt a more dramatic blow by artificial immunity than typhoid fever. The baneful malady that has raged through the ages in all the countries of the world has at last succumbed to a preventive vaccine, although once it has developed it is still resistant to every known scheme of treatment.

Von Petenkoffer, though proceeding upon the false theory of soil pollution, by his persistency and thoroughness freed Munich of typhoid fever. His example should pulse with living interest for us all, and with a knowledge of the sanitary closet, the banishment of the fly, the prevention of soil pollution, and added to all these vaccination, we as medical men should regard the presence of two or three cases of typhoid fever as a medical disgrace, and should we fail to so recognize it the public will soon awake to the fact that we are negligent and careless.

The notice in the *Progressive Farmer* this week that the health officer would appear at a number of places for three consecutive periods for the free administration of typhoid antitoxin made me blush for shame that in my county not even the most violently contagious diseases are reported, and if reported are reported half-heartedly.

"When Bocaccio's knights and ladies ran from plague-ridden Florence to a walled city not far distant; when Pepys, with head bowed down, as his diary tells us, stalked the London streets, at the time of the Black Death, they would have given their jewels and their money to have received into their healthy bodies a few doses of bubonic plague vaccine."

A whole-time health officer would have but little trouble in convincing them that Dr. Hoffkines' vaccine was the one essential.

There is no sphere of medicine today crying out more piteously for enlightenment, encouragement and education than tuberculosis. The modern message abounds in hope because tuberculosis, if an early diagnosis is made, is coming more and more to be recognized as a curable disease. But mingled with that hopefulness is the fear that it is transmissible. The hopefulness is a most encouraging feature, but the fear of it has gone to the greatest extremes, branding the tuberculosis patient as a leper. I am thoroughly of the opinion that tuberculosis should be among the list of diseases requiring notification, but this can never be until we have robbed the public of the wholesale fear and there is instilled into the public mind the feeling that if the patient is taught how to live there is no danger in him.

So certain is the victory of modern science that when one knows just wherein lies the danger, and takes precautions, one may nurse consumptives year after year and still be safer than in any other employ.

"When one in three of the flowers of our youth, and one in four of our ablest workers are carried off by a dread plague, when wealth exceeding what comes to our shores in commerce every year is every year exported to that bourne from which no traveler returns," is it a wonder that I ask the coöperation and support of you, gentlemen, for a whole-time health officer?

Rockefeller may expend another million in the eradication of hookworm and yet the campaign will only have begun. Stiles estimates that sixty-eight per cent of the rural homes in the South are without closets of any kind. Some schools have not these accommodations, and are, therefore, hotbeds of infection. After all, the campaign is one of education and there can be no hope of its ultimate eradication until that campaign has progressed very much farther than it has today. "To change the habits of half a nation requires time, patience and infinite tact."

"If you ignore the customs and prejudices of the people, the reformer and benefactor will meet with rebuff and failure." And while we are prodding and awakening interest in this great public matter, let me say right here that the medical profession will come in for its share. "Be not weary in well doing," gentlemen, and in supporting a whole-time health officer in a campaign against hookworm be ye well assured that it will "result in a fundamental and permanent control or eradication of the communicable disease."

There is no more wide or complex problem than the health of school

children, because during certain ages all children are at one time or another in school.

Within recent years it has only been recognized that the State owes more to the child and more to itself than a mental education to a greater or lesser degree. In the majority of schools where no attention is paid to the pupil's individual physical welfare nor any attempt is made to recognize the disease which careless parents neglected to observe at home, many thousands of lives are sacrificed annually and hundreds of others bear the scars of the educational fray until life's work is over.

It has been estimated that eleven per cent of the public school children are unfitted to enter into competition with their healthy fellows, and as these require education the same as the non-defective, medical inspection provides a means by which this large number may be materially reduced. Then, too, viewed again from its economical side, there is the early detection and isolation of the contagious diseases, and by this early detection there is effected a saving of no small magnitude.

"The enlightened statesman knows that the strength of a nation lies in the strength of its people, and the highest function of law is the protection of their life, health and development." "That public health is public wealth." The public too is rapidly awakening to the fact that the prevention of disease is more economical than its cure.

That the public may be wise in the selection of their statesmen and sane in the legislation requested of them, there can be no safer way than through the educational campaign effected by this health officers' association.

I am fully aware that I have but lightly touched upon the field of usefulness of the whole-time health officer. The custom, if generally adopted, rather than stale the infinite variety of his usefulness will become more and more of a necessity. The whole-time health officer is here to stay, and if every doctor, united to do battle against that dread monster, communicable disease, will go home to his clientele with that confidence in preventive measures that is the prerequisite of success, no longer will those long-suffering counties be without an efficient health officer.

PROGRAM FOR THE SUMMER MONTHS FOR THE WHOLE-TIME HEALTH OFFICER.

Dr. William M. Jones, Greensboro.

The question of the program for the work of the county health officer during the summer is a pretty big question because of the differences between one county and another, the different conditions that face the whole-time men in one county and another. I do not know the way in which other whole-time men have obtained the results they have. I know results have been obtained, but I do not know the methods used. If I did, perhaps I could not apply those methods in my particular case. So whatever I may say will be from the actual experience that I have had. That is not much, but I do not want to go into any theory about something I have not tried.

Now, as to the first thing, the improvement of the school grounds. We have heard this afternoon some excellent ideas on the score card plan discussed by Dr. Washburn, and then we heard Dr. Nesbitt talk of the psychological effect on the child of the school and the grounds. I believe that has far more importance than is generally attached to it. If the child goes to a school house where there is an old well with the top knocked off, windows that have probably never been washed, walls all cracked, seats it would take an acrobat to sit on, that child will not be favorably impressed with the school. By means of a card record we try to keep account of all the schools visited during the year. On this card we take account of the condition of the school grounds—the well, whether the grounds are high and dry, if the building is two-storied, whether there are sufficient means of escape from the upper windows, etc. For the last two years I have worked fairly hard, and I have yet in the two years to reach every school in the county. I take these cards in the summer and write to the school board of each particular school, stating the defects we have found. That comes along as the general work of the year and as part of the work I am going to do this summer, and I am now engaged in looking after the schools and getting out these letters to the various boards.

The next point I want to consider is the question of the hookworm campaign. This, I think, in any county where you do have the hookworm, is simply the opening wedge to health work in the county. The first thing, you get the topography of the county, you get to know the people of the county. Another thing is that when you treat these children, these cases of hookworm, it takes just a little while to get the results. You carry the microscope with you, you show the

eggs, you give the treatment, you instruct the patient to collect the worms and bring them back at the next meeting, you take the patient's weight. You can show them with the eggs and you can show the worms. It takes only a little time to convince the patient and his friends and neighbors. It impresses them, and then if you go on and tell them about typhoid fever and about destroying the excreta and give them minute instructions they will obey you. This is one of the strongest points in the hookworm campaign. We ran a campaign of five weeks, and at every meeting the numbers increased.

Now, another point that I want to emphasize to some extent is the value of giving the public scientific data regarding cancer in such a way that they can understand it. We had Dr. Bloodgood, of Baltimore, with us, and he made an address on this subject, and since that time several physicians in the county have helped out, and we have reports from Wilmington to Waynesville and on beyond of 280-odd cases of cancer that were operated on as a result, cases that waited too long and in which the operations gave only a short extension of time, and many early cases. In our own county there have been a number of these early cases that have come to physicians to have small moles, etc., removed. I think the public is entitled to some information on cancer.

The work I want to do this summer particularly is along the line of typhoid fever and infant mortality. They are the two conditions that cause the high death rate in my county. They are the conditions, then, that I must fight this coming summer. Now, the people generally do not recognize the fact that typhoid fever is a communicable disease. Typhoid fever is just as communicable as any other communicable disease, although one is not so likely to contract it probably as a case of smallpox. The death rate is about 105 to 1. In fact, it is so fearfully high all over the United States that I think typhoid might well be called the American disease. Well, typhoid fever can be prevented, but the instruction that is generally given the families where there are cases of typhoid is entirely inadequate. Physicians simply tell them to sterilize the discharges, and they perhaps throw a little carbolic acid on the discharges and bury them.

I want to give you a little illustration. A case of typhoid occurred in my county last summer. About five weeks after the physician reported that first case, he reported five other cases in the same family. I went to the house to investigate, and I found that several hundred yards from the house was a spring, and about twenty yards from this spring was a hole in the ground where the discharges were buried, draining directly into the spring from which the other members of the family were getting their water.

I have written the physicians of my county a circular letter urging them to report promptly, and offering to go myself and give the people the opportunity of using typhoid vaccine, or, if the physicians prefer, I offer to give them the vaccine.

I have arranged so far in five places in the county for the organization and formation of clubs of mothers, or community clubs. I get the mothers that are interested to attend these meetings, and we have decided to take Holt's little book for mothers, on the care and feeding and handling of children, and study that. Our plan is that I shall go once a month and we will take up the course of lectures in this book, and I will give them a lecture. In two weeks the club meets again, when I am not there, and they will discuss the questions we took up at the previous meeting. Then at the next meeting I go and give them an opportunity to ask any questions they do not understand about the former talk and take up the next series in the book.

To show you how that has progressed, I took a little village where it is always hard to get a crowd. The first time I went there were two mothers, the next time there were five, the next time there were fourteen. I believe that in this way we will get the mothers interested, and not only interested, but that it will be a source of some advantage to them in feeding and handling and taking care of their children, and in that way we will lessen the death rate.

One more thing I want to say, and that is about the contest we held last year in the way of a better babies contest. This contest, I believe, has resulted in more real good—I believe the lives of more babies have been saved as a result of this contest as it was conducted with us last year, than from any other one thing that has been done along health lines in the county since the work has been organized. We began this work through the woman's clubs. They got in touch with the clubs in different sections of the county, community clubs and woman's clubs, and gave them the idea and got them interested. Then the social service department made dates for the examination of babies at different localities in the county on certain days. I think we had seventeen of these points. The physicians of Greensboro and High Point helped out, and the physicians in the county came and helped. Then we had the contest in the city, and finally the contest at the fair. The fair authorities were more or less skeptical as to the proposition. They did not want to give us much of a place and did not want to give us any money at all, but they soon saw that it was a money making proposition for the fair. Right after it was over, the secretary of the fair said that next year we could have the best place in the building, and that he would put up the long green. The main prize we will give this year will be for the child that

shows the greatest improvement over last year. Each child has the score card given last year, and the child that makes the most improvement over last year will get the first prize. Of course, the main object is to get the mothers interested and to get them to studying the question in a scientific way. This year we are going to have a bigger and better contest than we ever have had before.

Now, the last thing I want to say is about a vacation. I think we all ought to have a vacation. We shall feel better and work better for it, and we will not get into a rut.

DISCUSSION.

Dr. J. Howell Way, Waynesville: I want to commend especially the remarks of Dr. Jones, whom we all recognize as one of the most efficient and most practical health workers in North Carolina, and to say to you as a physician and as a general practitioner of medicine and as one interested in public health that we appreciate very much the kind of work that Dr. Jones is doing because he is doing practical work.

Now, it is a crucial time for the medical profession of North Carolina in relation to public health work because the work is big and wide and round and large, and because it is our work. It is not the work of the school teacher. It is not the work of the college man; it is not the work of the lawyer, but it is the work of everybody in general and especially the work of the members of the medical profession. The responsibility for the inception of this work is ours, and it is no one else's. We are the fathers and the mothers and the nurses of this great public health movement, and we can not escape the responsibility for its future. Whom does society charge specifically with the duty of standing in the pulpits and inciting men to higher and nobler deeds and lives? The college man, the minister of the Gospel. Public sentiment requires apparently that every year we must have thousands of laws made, and farmers, doctors, lawyers and shoemakers, and others of the community units, get together and enact those laws. Who is eventually responsible for those laws being rightly framed and correctly interpreted? The lawyers, though they represent a minority of society. In the same way the medical profession are responsible for public health work. They can not evade it, they can not shirk it. Who is responsible for the attitude of the medical profession? The specialist? No, the general practitioner of medicine is the man who makes the sentiment of my profession. That being our position, and I believe I am correct, it behooves us to be thoroughly alive to our opportunities, and, with not a word of criticism of the general practitioner, because I love him, I respect him, because I know he is an overworked man, I want to say that I am afraid the average general practitioner does not keep himself abreast of this movement as he should. The best health officers

we can get are men who have been actual practitioners. They know how to deal with people. Health officers must be careful that theories, undemonstrated propositions, are not carried to the general public as facts. Doctors, they say, are slow about these things, but what is the reason? Why, because the doctor, the general practitioner of medicine, has his days and his nights full of doubt and uncertainty, and he is not so cocksure of certain pathological entities producing certain definite results. The average general practitioner will generally say to you that typhoid infection is due to bad drinking water. Yet that average general practitioner believes that in the future typhoid fever will be split up into possibly three or four divisions. The average general practitioner believes that some of these fevers are due to extrinsic influences, and yet the average practitioner who has practiced medicine for fifteen or twenty years will say that he believes some of these cases are due to intrinsic influences.

Now, our public health people must be careful. I do not want them to go slowly, because the world is moving fast. I want the average practitioner to pull himself a little bit faster and farther, and I want the health people to put out to the general public only demonstrated facts, and I want them to stop there. I do not want the average practitioner of North Carolina to get it into his head that this is not his responsibility, and that it is not his duty to watch for it and pray for it every day of his life. The very day he became a doctor of medicine he took upon himself certain duties and responsibilities that will not cease until he stops the practice of medicine or enters the Heavens above.

Dr. Chas. T. Nesbitt, Wilmington: I have been doing a good deal of very serious thinking since I have been here at this meeting. I attended a meeting of the full-time county health officers last October in which we groped around for some plan of procedure that would be satisfactory and effective. The true importance of that meeting last October did not dawn upon me until today, and a further important feature of that meeting did not dawn on me until Dr. Way was speaking.

Public health work is new work. It had its beginnings some time ago, many years ago, centuries ago, thousands of years ago, it had its beginnings, but it has dragged through long periods of inactivity for the lack of methods of precision. The discoveries of the microscope, the discoveries of the great bacteriologists and pathologists of the world, have supplied those methods of precision. Every fact on which the health officer works has been the result of the inquiry of the average practitioner. The scientific world has responded to that man with certain specific information regarding the cause of disease. That that information is not full and complete and comprehensive is a matter we will not dispute, and

that further scientific discoveries may modify our views in regard to all diseases is another matter we whil not dispute. We have a great many concrete facts upon which to base our present position. We feel very much elated over the possession of these concrete facts. We feel, as Dr. Way put it, exceedingly cock-sure about some things. Dr. Way stated the truth when he said we might be too cock-sure, because we might, and sometimes I believe we are. I can appreciate very clearly Dr. Way's idea of the attitude of the medical practitioner, because I had about eighteen years of that work before I became a public health man. This thing remains as the truth of the present situation. We are all groping. We have had a little light, but it is just the twilight of the dawn. There is plenty of room for the general practitioner and the public health man to meet. There is enough light in the dawn for the average practitioner and the public health man to see the earnestness and the sincerity and the honesty in each other's faces. One of the most serious mistakes I have made, and I am perfectly frank and willing to face it, is in being too ready, in many cases, to attribute unworthy motives to those who disagree with me. I realize fully that I have not been alone in that field. I realize fully that in all of our efforts we have made the one crippling mistake in men working for the common good, that of thinking of self just a little too much. When the practitioner of medicine steps out into his field he must forget himself if he is to be successful. He can not forget himself entirely, but his major interest must be in the community he serves. When the public health man steps out to serve the public he must forget himself just a little bit more than the general practitioner. I look back at our October meeting and I feel that our gropings at that time and our present gropings are a very appreciable distance apart, our present gropings being much to the fore. I have been astonished, most gratifyingly astonished, at the accounts the whole-time health officers have given of their achievements. I have been amazed that so much could be accomplished. I know what they have been through, I know what they have had to buck up against, because I have had the same things to buck up against. I know how they wanted to do the things they were not permitted to do, because the public is groping very far in the rear, and because the general practitioner is groping just a little in the rear. Dr. Way said a very true thing when he said that the average practitioner was not keeping up enough with the public health work. With his enormously busy life it is impossible for him to keep up with the public health work of a man who devotes his whole time to it. He is excusable, to a very great extent, for his criticism, which is the result of ignorance of the work of the public health man.

I want to add a little something to the program of the whole-time county health officer, not only for the summer, but for the rest of his life. His work is too big, too magnificent, to permit anything to impede his progress. We, all of us, have allowed small personal matters to impede our progress. There has not been perhaps the confidence and respect there should be between the three sets of men working for the public good. We must get together, the medical profession, the State Board of Health, and the full-time county health officers. The three groups must step out together to fight this battle with disease. We can not escape it any longer. We have lost too much time in our differences; we must not lose any more time in that way, and as a member of the North Carolina Full-time Health Officers' Association I want to propose on the part of the association a resolution setting forth an expression of confidence and respect on the part of our association in the State Board of Health, its executive officer and the medical profession at large.

Dr. G. M. Cooper, Clinton: Gentlemen, I remarked this morning that we were doing pioneer work in this whole-time health officer movement. I said this also, while we are doing hard work, pioneer work, I feel we are pretty near a basis of thorough understanding between the State Board of Health, the whole-time health officers, the county physicians, and the general practitioner. I am gratified at Dr. Nesbitt's remarks. Some of us know the difficuties under which Dr. Nesbitt has had to work; some of us know the difficulties under which the State Board of Health has had to work; and I am glad we have arrived at a time when we can get together and have a thorough understanding. I will ask Dr. Nesbitt to draft that resolution immediately.

While he is doing that, and while we are discussing this work of the whole-time health officer for the summer months, I want to give an experience I have had, if you will pardon me for being personal. It is pertinent because of the fight the State Board of Health is having right now with a certain city in North Carolina. I think the State Board of Health is exactly right. If the State Board of Health can not point out to the people of North Carolina a town that is advertising all over the country for health seekers and summer vacationists, when we were all there last summer and know things as they are, if the State Board of Health can not point out these things, upon whom are the people of North Carolina to depend to point out these things? The State Board of Health can not have any spleen or malice against that city.

The remarks I am going to make about a little piece of work in our town would be pertinent. You know Dr. Stiles and his associates have worked out a process by which they can definitely detect whether or not a

person is taking into his system fly-borne filth. Several weeks ago I collected some specimens and sent them to Dr. Stiles, and he found that we had one person out of seven consuming this poison. I followed this up by getting him to send a letter about this matter. I listened for adverse criticism, but all I heard was favorable. I heard one person say that Dr. Stiles was going out of his way to write such a letter. The fact is that most of the people take it in the spirit in which he sent it out. That will enable us, I think, without any trouble, to get the sanitary ordinances passed for the whole town, a matter I have been working on for three or four years. I just mention this so that if any other whole-time officer would like to have this test made I think Dr. Stiles would be glad to make it.

Dr. H. D. Stewart, Monroe: May I speak of a matter briefly here? There has been an epidemic of mad dogs in our county. One comes along and bites about twenty dogs, and it takes some of those dogs about six months to go mad. I want this association to go on record as asking the next legislature of North Carolina to pass a law requiring all dogs to be muzzled. Require them to be muzzled so that they can not bite, but can eat and drink and bark. I wish North Carolina could be the first state in the Union to do this. I think no other state has such a law. I think we ought to ask the legislature to pass such a law requiring dogs to be muzzled. I move that the President of this Health Officers' Association appoint a committee with Dr. W. S. Rankin on it asking the legislature to pass such a law.

This motion was not carried.

The following resolution offered by Dr. Chas. T. Nesbitt was adopted by the Association:

Resolved, That we, the full time county health officers, here assembled, desire to express our appreciation of the assistance rendered us in our work by the State Board of Health and its executive officer, Dr. W. S. Rankin, and to publicly proclaim our confidence in and respect for these officials.

The Auditing Committee made the following report:

We, the undersigned Auditing Committee, have carefully looked over the Treasurer's books and find same to be correct, as per his report.

D. E. Sevier, *Chairman.*
E. F. Strickland.
A. Cheatham.

The Committee on Nominations made its report as follows: For President, Dr. William M. Jones; for Vice-President, Dr. D. E. Sevier; for Secretary-Treasurer, Dr. W. S. Rankin. This report was adopted and these officers elected.

Dr. J. Howell Way, Waynesville: I hardly think we ought to adjourn without adopting a resolution tendering the thanks of the State Health Officers' Association to our retiring President for his successful administration of the affairs of the Association, for his able, masterly address and the progressive ideas contained therein and for his courteous, wise presiding over the deliberations of this body today. I move that we adopt this resolution by a rising vote.

This motion was seconded, and a rising vote of thanks was tendered Dr. Cooper.

The Health Officers' Association then adjourned.

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